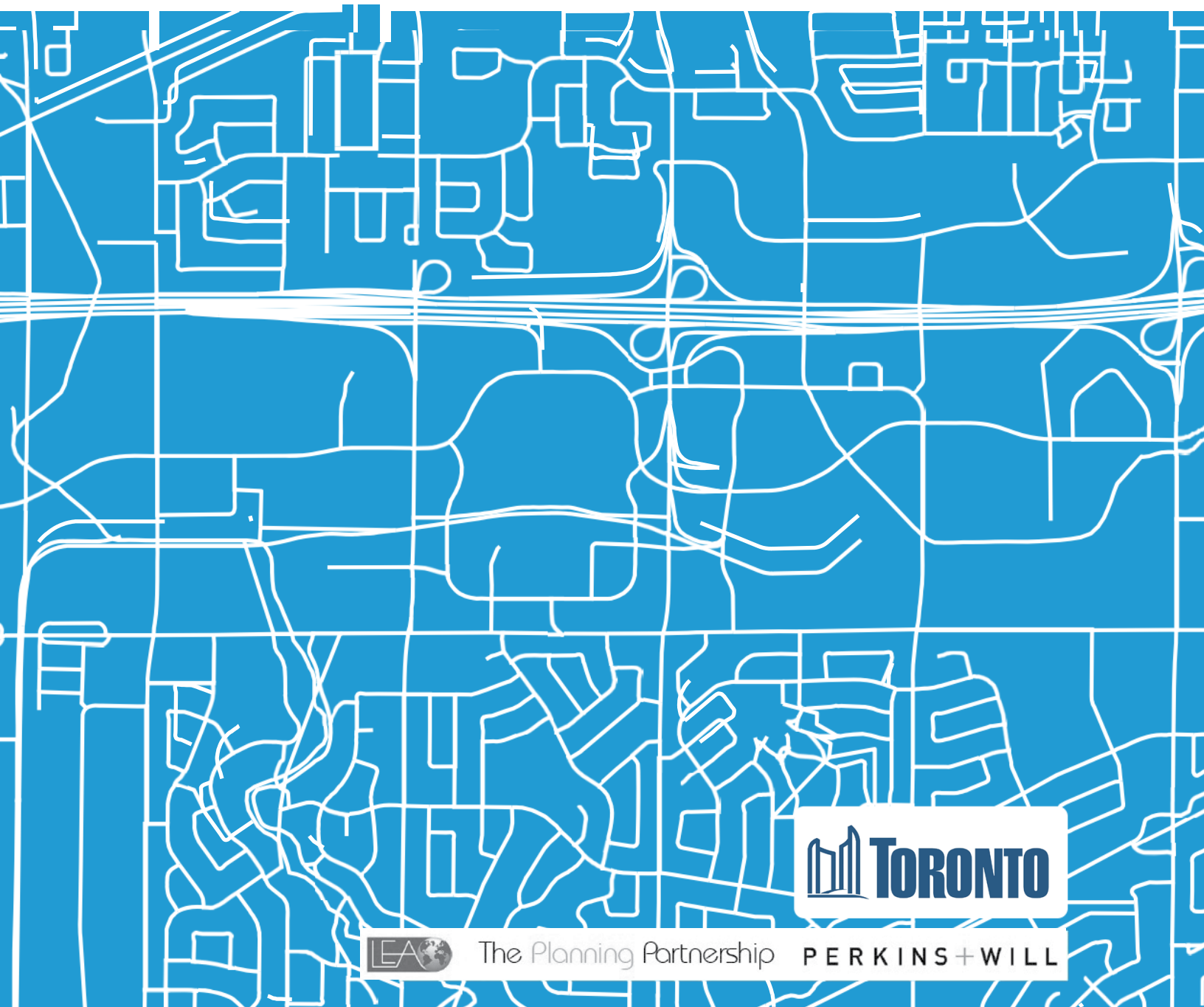
Scarborough Centre on the move building connections

SCARBOROUGH CENTRE TMP

PROGRESS MEMO NO. 2

JUNE 2017



TORONTO

LEA The Planning Partnership PERKINS+WILL

Table of Contents

1.0 Introduction

Over the next 20-30 years, Scarborough Centre's population and employment numbers are expected to grow significantly through development and public sector investments. The Scarborough Centre Transportation Master Plan (SCTMP) Study is being developed to guide future changes to how people and goods move within the Centre as well as to and from the surrounding areas. The SCTMP study area extends east-west from Midland Avenue to Markham Road and north-south from Highway 401 to Ellesmere Road. The intent is to develop the framework and direction for a multi-modal transportation network that encourages walking, cycling, and transit, while reducing automobile dependency. This overall direction is consistent with broader municipal and provincial environmental and economic goals.

Scarborough Centre is recognized as a major transit hub in the Greater Toronto Area (GTA) and is expected to receive major transportation investments. This transportation master plan will be positioned to reflect these investments and guide the development of *healthy communities* and *Complete Streets* by applying a comprehensive transportation planning approach. This approach includes a review of existing conditions, development of area-wide transportation network alternatives, evaluation of the alternatives, and recommendation of a preferred transportation network for the area. The SCTMP is being conducted to satisfy the requirements of Phase 1 and 2 of the Municipal Class Environment Assessment (Class EA) process in accordance with the Environmental Assessment Act.

This is the second progress memo for the SCTMP, building upon the identification of existing conditions in the first progress memo. The following items are included:

- Problem/Opportunity Statement
- Vision Statement
- Existing Multi-Modal Transportation Assessment:
  - Pedestrian
  - Cycling
  - Transit
  - Automobile
- Transportation Demand Management (TDM)
- Transportation Network Alternatives
- Evaluation Criteria and Methodology
- Preliminary Preferred Alternative

1.1 Final Problem/Opportunity Statement and Vision Statement

As part of the Environmental Assessment process requirements, the following Problem/Opportunity Statement was developed for the Scarborough Centre Transportation Master Plan:

As one of Toronto's four 'Centres', Scarborough Centre is a key location within the city that combines jobs, housing and services in a dynamic mixed use setting supported by excellent transit accessibility. Located at the heart of Scarborough, the area is expected to be a magnet for future growth over the coming decades.

Currently, Scarborough Centre is less than the sum of its parts:

- The existing transportation network is designed to favour vehicular movement as is defined by big blocks that result in longer travel distances;
- Bridges, ramps and grade separations are barriers to walking and cycling;
- Dedicated infrastructure for cyclists is lacking;
- Crosswalks are distantly spaced, sidewalks are often too narrow, missing or located in a way that does not support a vibrant

and walkable public realm; and

- Development parcels are large and not serviced in a manner that supports a finer grain in the urban fabric.

Given the significant public and private investments planned for the area, an opportunity exists to evolve the transportation network in a manner that better supports the policies outlined in the Scarborough Centre Secondary Plan. Key opportunities include developing a **simplified grid street network** that is safe, accommodates all users and reduces travel distances. Giving priority to infrastructure required to **enhance walking, cycling and transit** will help build connections throughout the Centre as well as to the surrounding community and beyond. **Improved transportation facilities**, complemented by **better wayfinding, land use diversity and an inviting public realm**, will provide greater accessibility to the area's many amenities. The Transportation Master Plan will help guide growth and ensure the emergence of a vibrant, walkable and connected Scarborough Centre.

Based upon consultations with the City, Technical Advisory Committee (TAC), Local Advisory Committee (LAC), key stakeholders, and the public, the following Vision Statement was developed:

The Scarborough Centre transportation network will develop in a way that supports the creation of a diverse, attractive and safe mixed-use community which is easily accessible by all modes of transportation. This will be achieved by creating a simple and fine-grained street network which provides infrastructure and amenities for all street users. This transportation network will be fully integrated into the regional transportation system, including the transit, pedestrian and cycling networks, and provide clear and easy connections to the surrounding communities.

2.0 Existing Conditions

2.1 Quantitative Multi-Modal Assessment

A quantitative multi-modal assessment was performed to evaluate the existing performance of transportation facilities for pedestrians, cyclists, transit, and vehicular traffic within the study area. The assessment includes a quantitative analysis of the demand, utilization, and level of service (LOS) of all modes in an effort to identify opportunities for improvement in creating a multi-modal urban area. LOS quantifies the quality of service provided for each mode of travel using performance measures with LOS scores of good (LOS A or B), fair (LOS C or D), and poor (LOS E or F).

Historically, the assessment of transportation networks has primarily focused on vehicular traffic with no existing and widely-accepted standard LOS rating for pedestrians and cyclists. However, quantifying the experience for all modes within the study area is important to identify necessary transportation improvements. A summary of the method used for each mode of transportation is presented in **Table 1**. Additional details of the quantitative multi-modal assessment can be found in **Appendix A**.

Table 1: Quantitative Multi-Modal Assessment – Summary of Approach

Mode	Methodology	Outcome
Pedestrian	Pedestrian LOS in this report is measured using the following criteria: sidewalk width, grass or paved boulevard width from the sidewalk to travel lane, the presence of on-street parking, traffic volumes and operating speeds.	Identification of segments within the study area that have the best and worst pedestrian conditions.
Cycling	Cycling LOS evaluates the presence or absence of dedicated cycling infrastructure within the study area. The following criteria were used to determine cycling LOS: bicycle lane width, curb lane width, on-street parking, heavy vehicle volume, overall traffic volume, the percentage of right and left turns, speed limit and the number of travel lanes.	Identification of segments within the study area that have the best and worst cycling conditions.
Transit	The transit analysis focuses on surface bus routes within the study area, examining departure and arrival demand and utilization, the presence of stops with a shelter and/or bench. Analysis for Line 3 - Scarborough was not conducted due to the anticipated Scarborough Subway Extension.	Identification of the bus stops, routes and intersections that have the strongest demand and utilization in the study area.
Automobile	The Highway Capacity Manual (HCM), Synchro Version 9 and InterCalc software were used to evaluate operational conditions. This includes quantifying volume/capacity ratio (V/C), delay and queue lengths, peak hour factors, and percent of heavy truck vehicles, based on existing network configuration, traffic volumes and signal timing for intersections within the study area.	Identification of intersections/approaches with traffic constraints.

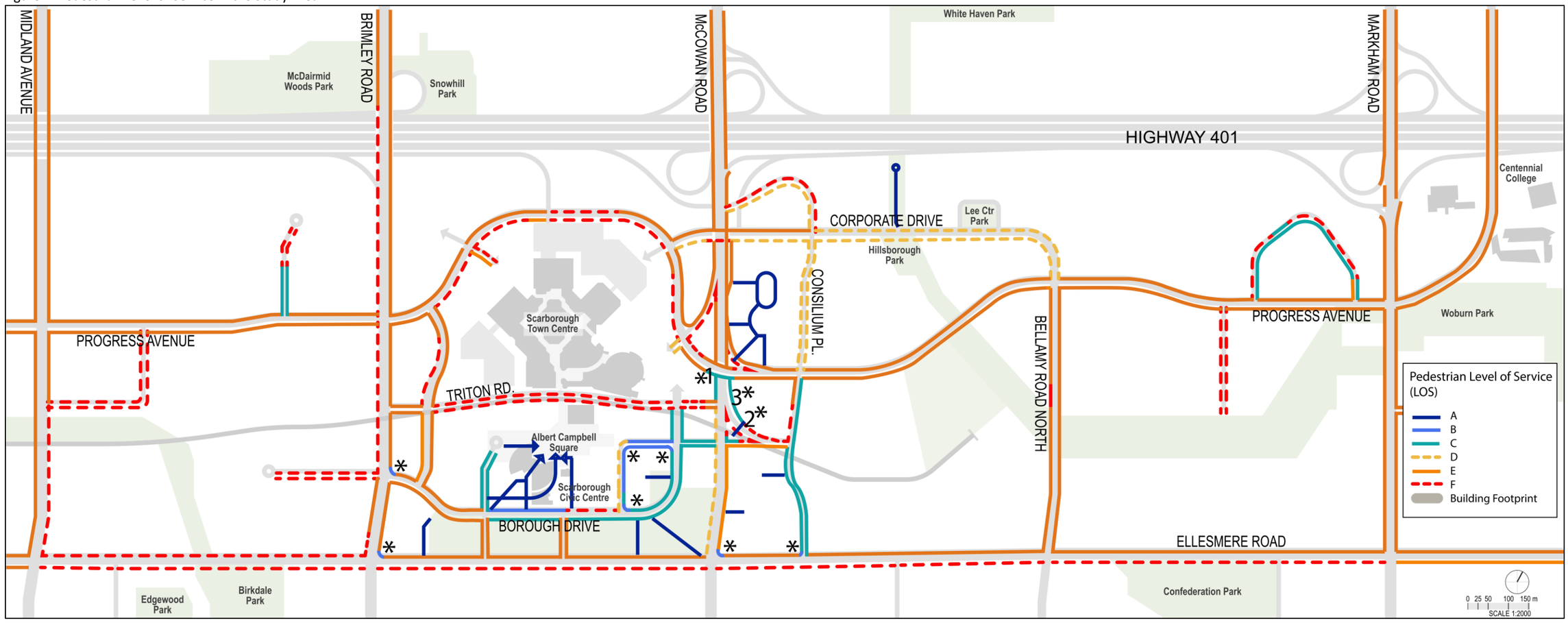
Pedestrian

As shown in **Figure 1,** an analysis of pedestrian LOS found that the majority of sidewalks in the study area are quantified as poor (LOS E). An LOS E score is largely characterized by fragmented and disconnected sidewalk infrastructure, narrow sidewalks, high traffic speeds, and lack of physical separation between sidewalks and streets.

In the Town Centre Commercial Precinct, which mainly encompasses the Scarborough Town Centre shopping mall, sidewalks are predominately LOS F. This indicates the absence of safe pedestrian infrastructure as well as sidewalks that are either entirely absent or are less than 1.5 metres in width. Road channelization and lack of designated pedestrian crossings compound the negative impact of missing sidewalks and therefore limit pedestrian activity.

The highest pedestrian LOS identified in the study area is an LOS A, but it is assigned to separated pedestrian trails and walkways, not sidewalks. The highest rating given to sidewalks in the study area is LOS B, most of which are located in the Civic Precinct, which includes the Civic Centre and Library. An LOS B score indicates a pleasant pedestrian experience with wide walkways, street trees, and parked cars that act as buffers from motorized traffic, contributing to the safety, comfort, and overall ambiance.

Figure 1: Pedestrian Level of Service in the Study Area



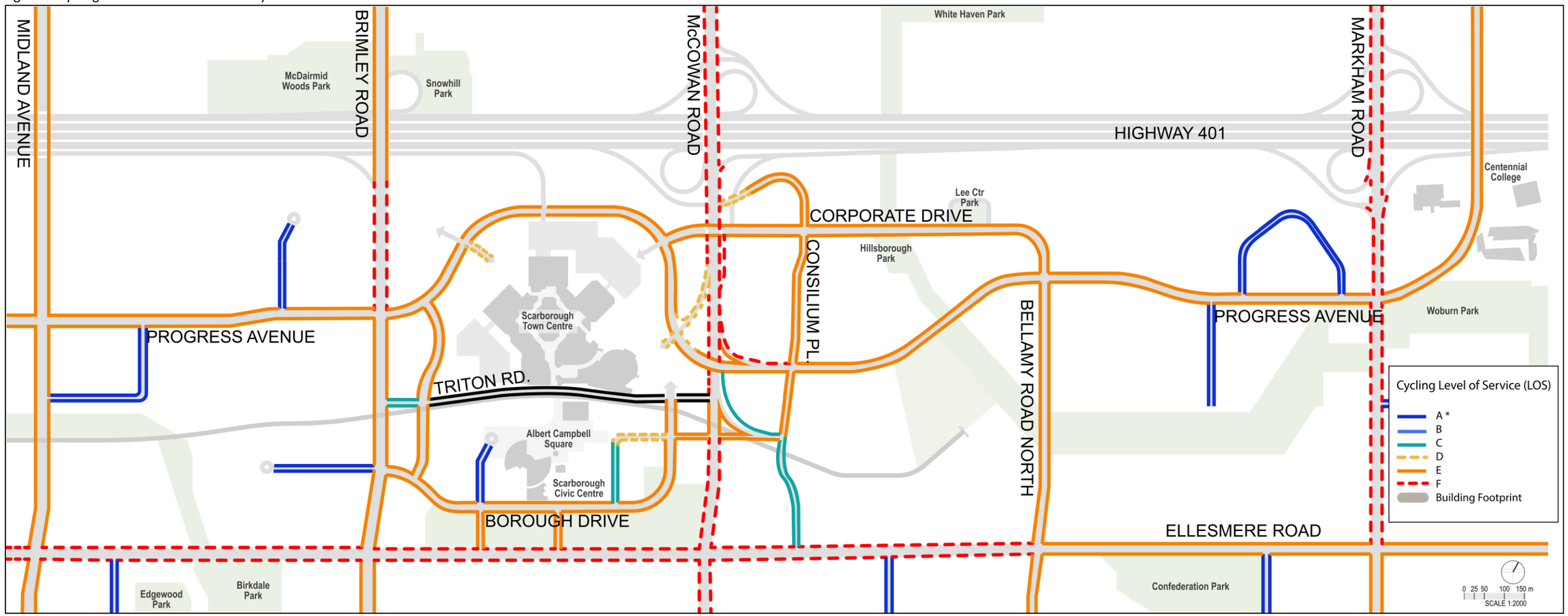
Notes:
1 Enclosed pedestrian walkway on Progress Avenue bridge
2 Enclosed pedestrian bridge from McCowan TTC station
3 Separated pedestrian path that connects Progress Avenue pedestrian walkway (1) to the bridge from McCowan Station (2); presence of street trees and other street enhancements
*Given LOS A despite failure to meet criteria; represents sidewalk enhancements (i.e. lighting, seating, streetscaping)

Cycling

The current cycling LOS in the study area is poor (LOS E or F), as shown in **Figure 2**. There are no dedicated cycling facilities present resulting in the categorization of the majority of streets as LOS E or F. LOS E or F indicates the absence of a dedicated cycling lane with relatively high traffic volumes and speeds of 60 km/h (i.e. Midland Avenue, Progress Avenue, Brimley Road, Ellesmere Road, McCowan Road, and Markham Road). This creates an unsafe and less comfortable cycling environment for cyclists. This is referred to as the Barrier Effect, which identifies the conflict (in delay, safety, and convenience) between pedestrians/cyclists and motorized modes of transportation.

A large number of conflict zones were also observed for cyclists in the study area, mainly at highway interchange ramps, along arterial roads, and at grade separations and major intersections. For example, the McCowan Road interchange with Highway 401 provides an unsafe condition for cyclists, as vehicles conflict with cycling movements when entering/exiting the ramps at speeds that can severely harm cyclists (60 km/h or more).

Figure 2: Cycling Level of Service in the Study Area



*Meets criteria for LOS A; however, no separation is provided between cyclists and other modes of transportation, producing unsafe/uncomfortable cycling conditions

Transit

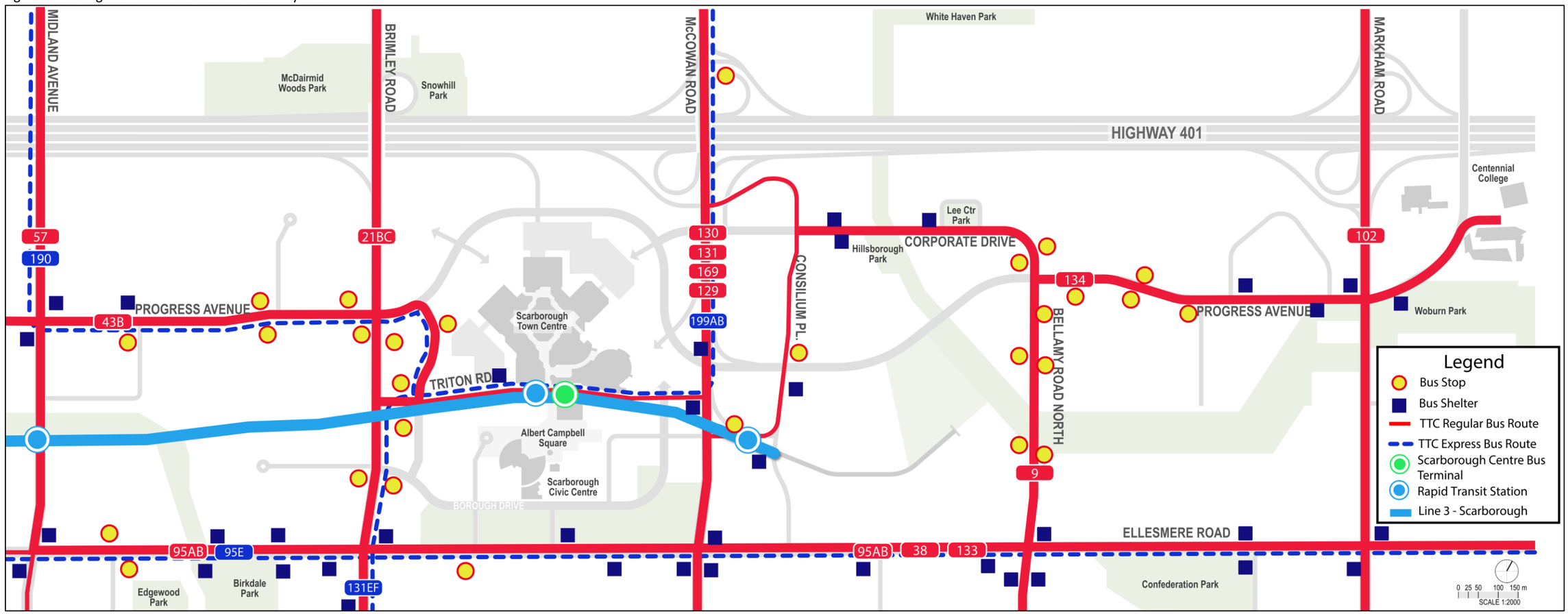
Public transit services in the study area have strong local and regional connections. Three rapid transit stations (Line 3 - Scarborough) are located in the study area and connect visitors, residents and workers to TTC Subway Line 2 (Bloor-Danforth). The existing transit routes and stops within the area are illustrated in **Figure 3.**

During the morning and afternoon peak hours, the 134 Progress and 133 Neilson TTC bus routes have the highest utilization in Scarborough Centre (more than 80% full).

Aside from the Scarborough Centre Bus Terminal, the bus stop in the study area with the highest demand is at the intersection of Corporate Drive and Lee Centre Drive. During the morning peak hour, over 136 people utilize this stop to access the Scarborough Centre Bus Terminal. This indicates that travellers within walking distance of the Scarborough Civic Centre and Scarborough Town Centre Shopping Mall choose to use transit, possibly due to poor pedestrian and cycling connectivity. Other notable transit corridors with strong demand are Ellesmere Road, Progress Avenue, Bellamy Road and Corporate Drive (i.e. at Lee Centre Drive).

It was also observed that major bus routes in the study area conduct complex route loops and maneuvers to enter the Scarborough Centre Bus Terminal. For example, at McCowan Road (between the intersection of Triton Road and Bushby Drive), buses pick up passengers at the McCowan rapid transit station, then make a left-turn at Triton Road, which involves merging across 2 lanes of through-traffic (60 km/h speed limit) in approximately 40 metres. This difficult maneuver results in delays for transit users during peak periods.

Figure 3: Existing TTC Transit Network in the Study Area



Automobile

A capacity analysis was conducted for vehicular traffic in the study area. The analysis identified intersections and approaches with good (LOS A or B), fair (LOS C or D), and poor (LOS E or F) conditions for the morning and afternoon peak hours, as shown in **Figure 4** and **Figure 5**, respectively.

Some delays and queue lengths were found in several intersections along major arterial streets during both the morning and afternoon peak hours. Specifically, several left-turn approaches were found to be operating at constrained traffic levels due to high turn volumes competing with high opposing through volumes at major arterial streets such as McCowan Road, Ellesmere Road, and Midland Avenue. Aside from this, intersections in the study area are generally operating at acceptable levels of service. This contributes to the attractiveness of automobile travel in the study area.

Figure 4: Automobile Level of Service (morning peak hour) in the Study Area

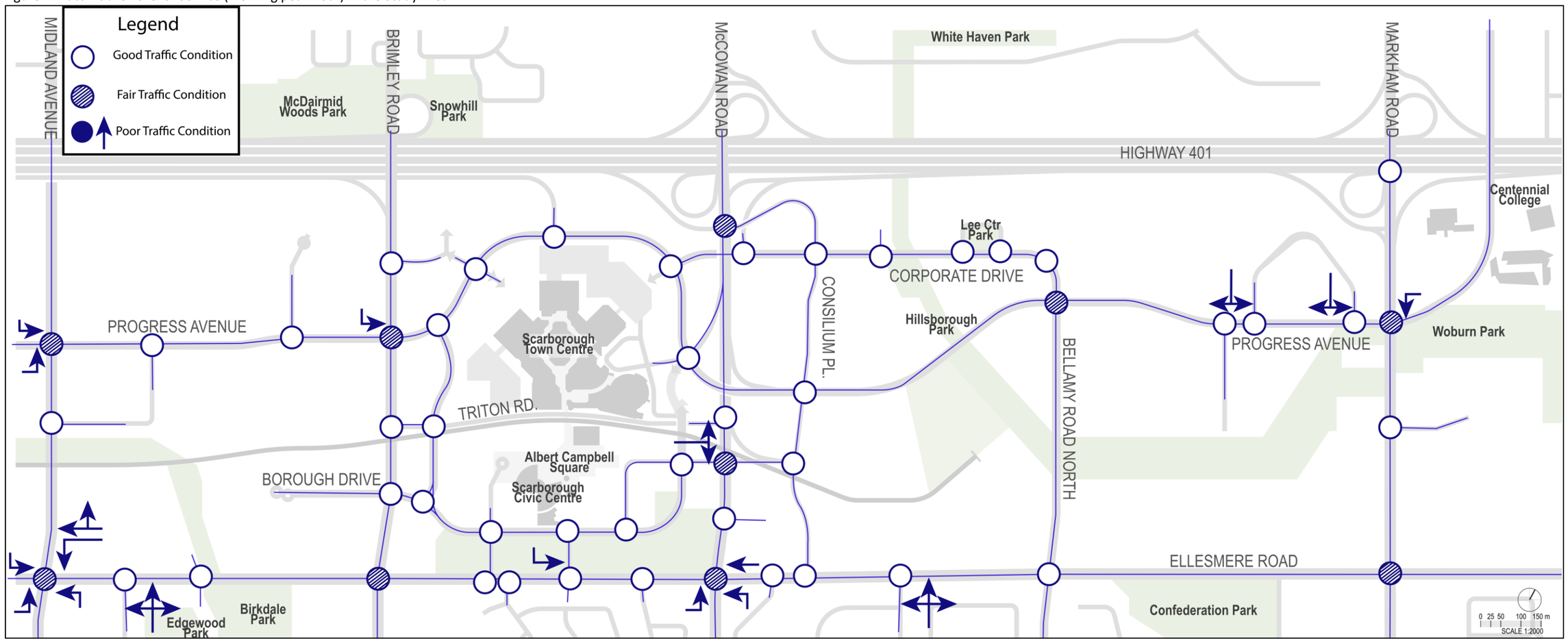
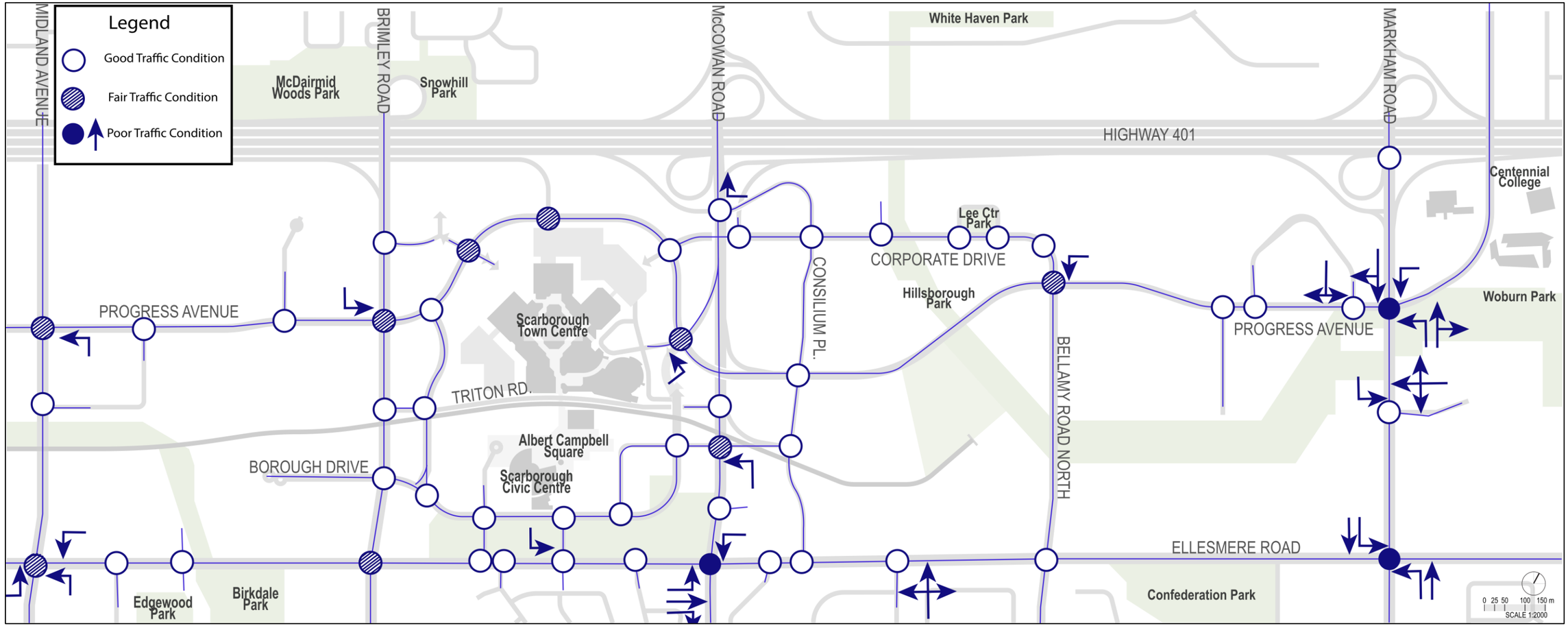


Figure 5: Automobile Level of Service (afternoon peak hour) in the Study Area



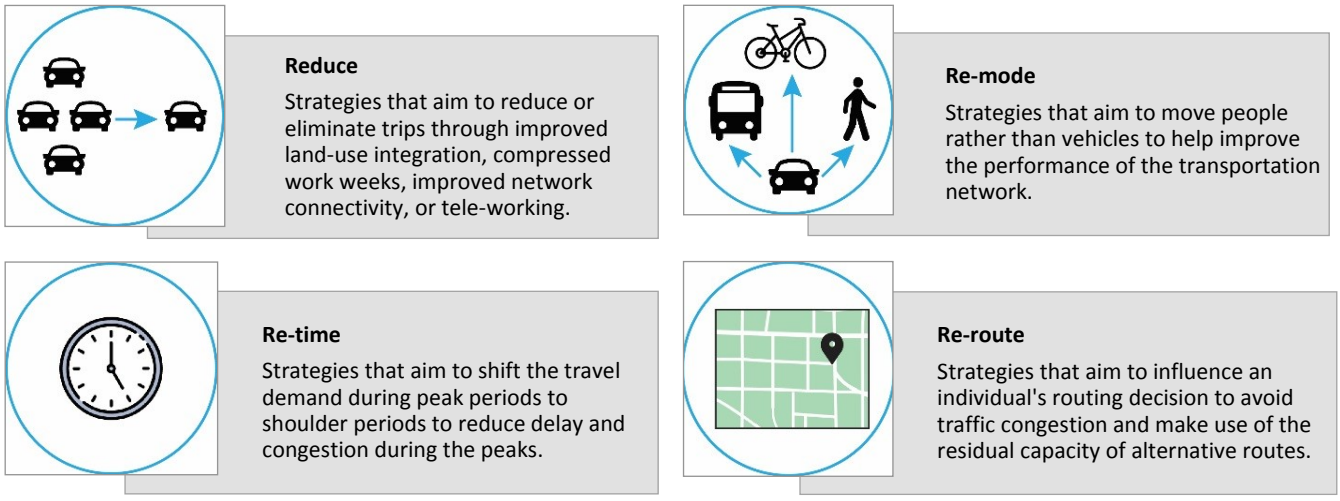
2.2 Transportation Demand Management

Transportation Demand Management (TDM) is a toolkit of strategies that facilitates a more efficient transportation network by encouraging sustainable travel behaviour. In order to reduce traffic congestion, a successful TDM strategy will reduce, re-mode, re-time, and/or re-route trips, as shown in **Figure 6.**

Section 2.4 of the Official Plan recognizes that Transport Demand Management (TDM) is an important tool to ensure the City's growing sustainability. The Official Plan identifies policies for the City to show leadership within the region in the implementation of TDM measures to reduce auto dependency (Policy 2.4-3) and encourages new developments to actively pursue TDM measures, which will increase the proportion of trips made by walking, cycling, and transit (Policy 2.4-3bi), while reducing the demand for vehicular travel (Policy 2.4-3bii). The Official Plan also encourages the shared use of parking and parking standards for mixed-use developments that reflect the potential for shared parking among uses that have different parking characteristics (Policy 2.4-8a). Policy 5.19 of the Scarborough Centre Secondary Plan proposes a reduced parking supply and adoption of car-share and TDM programs to encourage transit usage and reduce auto dependency.

The need for TDM strategies is identified and supported by the Province as well. Metrolinx's *The Big Move* outlines priority actions in *Strategy #4: Create an ambitious TDM Program* (Sections 4.1-4.5). Smart Commute is a Metrolinx program that helps organizations deliver initiatives that encourage the use of active and sustainable modes of travel. Some of these initiatives include carpooling and vanpooling, telework programs, as well as walking and cycling events.

Figure 6: The four Rs of Transportation Demand Management (TDM)



Car Share

Car sharing provides users with the convenience of car access without the financial and maintenance responsibilities of owning a vehicle. The existing car share operators in the Centre are *Zipcar* and *Enterprise CarShare*. The *Zipcar* location within the study area boundary is at the corner of Triton Road and Borough Drive and the *Enterprise CarShare* is located at 50 Town Centre Court.

Parking Fees

Parking fees are a disincentive TDM strategy implemented to discourage the use of single occupancy vehicles in the area. Limiting the amount of free parking may encourage individuals to take transit, walk, cycle, or carpool with friends or co-workers. The presence of hourly parking pricing also reduces dwell time and encourages faster turnover of vehicles, which increases the capacity for vehicles to enter and exit the Centre.

Metred parking (Green P Parking) is offered on-street along Borough Drive, Corporate Drive and Town Centre Court and in surface lots at 100 Grangeway Avenue (214 spaces) and 101 Grangeway Avenue (261 spaces) at a rate of $1.00 per half hour. In addition, parking fees are imposed in parking lots at 100 Consilium Place, 200 Town Centre Court, and 100 Borough Drive.

Bicycle Parking Facilities

Individuals are more likely to cycle if there are options to securely park their bicycle near their destination. Post and ring bicycle parking is located outside of Scarborough Civic Centre Library, Scarborough Town Centre Shopping Mall, McCowan Station and Midland Station. Bicycle lockers can also be found at Scarborough Civic Centre.

Transit Signal Priority

The study area uses transit signal priorities, which lengthen the duration of a green signal or shorten the length of a red signal for transit vehicles to improve transit travel time. Transit signal priority offers a way to increase the efficiency of transit operations and subsequently attract more riders to the system.

Smart Commute Workplaces

Smart Commute Workplaces provide options for employees to travel to work in sustainable ways, reducing their company's impact on congestion and the environment. Participating workplaces in the study area are the City of Toronto, Toronto District School Board (both located in Scarborough Civic Centre – 150 Borough Drive) and TELUS (200 & 300 Consilium Place).

The current TDM measures in the study area are limited but there are many opportunities to increase the use of non-motorized modes of transportation given the forecasted growth in the area. As residents and jobs move into Scarborough Centre, there will be an emphasis on transit-oriented development to accommodate growth while reducing traffic. Provision of an integrated transit system and fare structure (i.e. PRESTO) will be integral to influencing travel behaviour in the future. The rise of innovative transportation services will also change the way people move around urban centres. For example, the use of mobile apps to match users with ridesharing services (i.e. Uber, Lyft) will continue to facilitate higher vehicle occupancy. Autonomous vehicles, such as self-driving cars and transit vehicles, also present a potential opportunity for changes to the transportation landscape that could improve efficiency and vehicle occupancy.

A shift in mindset is necessary if Scarborough Centre is to become the urban centre envisioned by the Secondary Plan. A comprehensive TDM strategy for the study area is necessary to ensure adoption and implementation of TDM measures. Educational and promotional initiatives should be incorporated into the strategy to improve user awareness of the advantages of alternative modes and the associated improvements in infrastructure.

3.0 Development of the Transportation Network Alternatives

Three transportation network alternatives were developed to address the problems and opportunities of the SCTMP. The three alternatives outline the possible future scenarios for the study area.

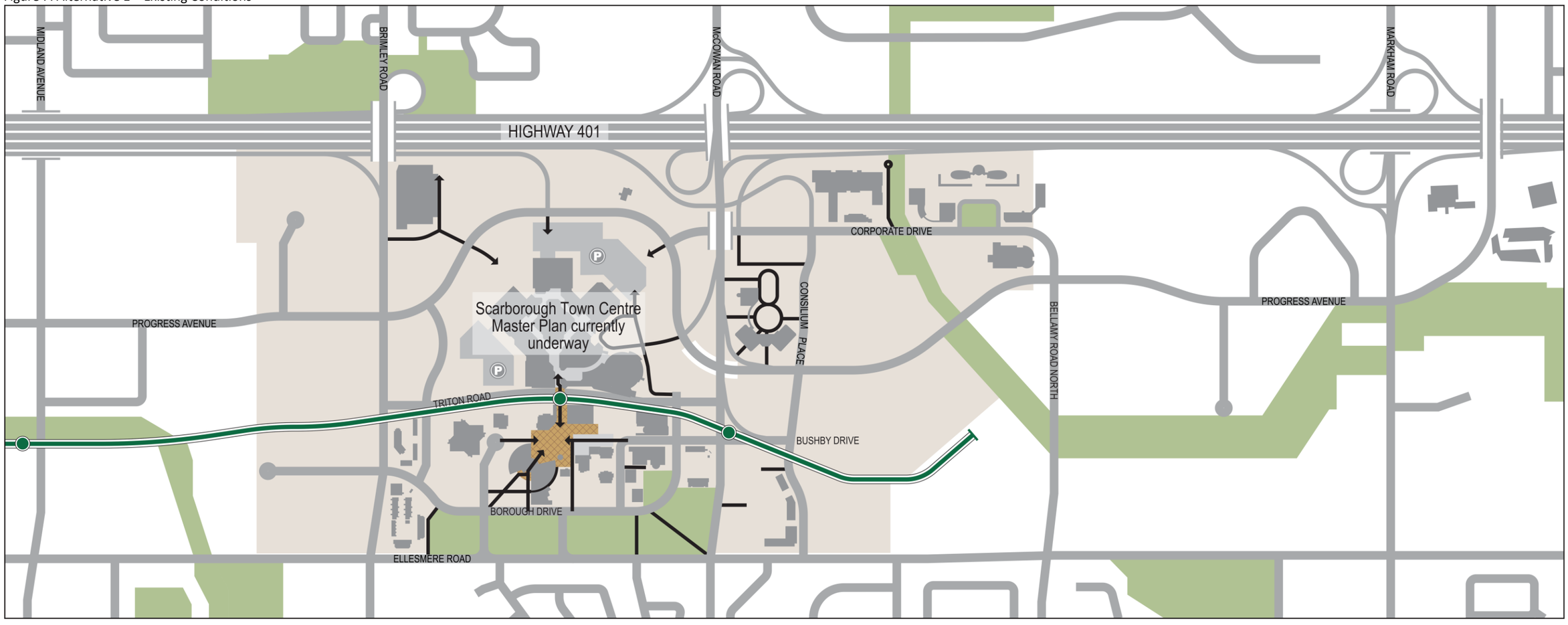
1) **Alternative 1: Existing Conditions** or the "Do Nothing" alternative provides a baseline comparison of conditions without any significant improvements. In essence, it is the transportation network found today in the study area.
2) **Alternative 2: Current Policy Framework** is the alternative identifying future transportation conditions outlined in previous planning work including planned improvements from the Scarborough Centre Secondary Plan, McCowan Precinct Plan and Scarborough Centre Public Space & Streetscape Master Plan. It also includes the new proposed Scarborough Subway extension and bus terminal.
3) **Alternative 3: Emerging Vision** includes the planned improvements identified in Alternative 2 plus a series of proposed improvements and solutions that encourage multi-modal transportation within and to/from the Centre.

3.1 Alternative 1 – Existing Conditions

As illustrated in **Figure 7**, *Alternative 1* represents the existing conditions in the study area. It is important to note that the existing conditions do not fulfill the policy objectives outlined in Places to Grow, The Big Move, the Official Plan, and the Scarborough Centre Secondary Plan. The transportation network does not facilitate pedestrian or cycling activity in its current state due to fragmented sidewalks and a lack of dedicated cycling infrastructure. This alternative includes the existing rapid transit services (Line 3 – Scarborough).

Currently, travel into, out of, and within the Centre is primarily auto-oriented and the existing transit system does not provide the efficiency necessary to attract riders. Difficult connections and long transfer times between modes also act as constraints to using active and sustainable modes of transportation. The pedestrian and cycling environments are incomplete and generate obstacles for accessing transit stations and stops.

Figure 7: Alternative 1 – Existing Conditions



3.2 Alternative 2 – Current Policy Framework

Alternative 2 is based on the principles outlined in previous planning work, including the Scarborough Centre Secondary Plan, the McCowan Precinct Plan, and the Scarborough Centre Public Space and Streetscape Master Plan. This alternative will accommodate the preferred Scarborough Subway Extension alignment and bus terminal.

The Scarborough Centre Secondary Plan details the planning guidelines to accommodate upwards of 40,000 residents and 23,000 jobs. To accommodate this growth, the Secondary Plan proposes improvements to transportation facilities and services, open spaces, parks and linkages, and land-use diversity. These ideas are further developed for the McCowan Precinct, an area characterized by office and industrial uses.

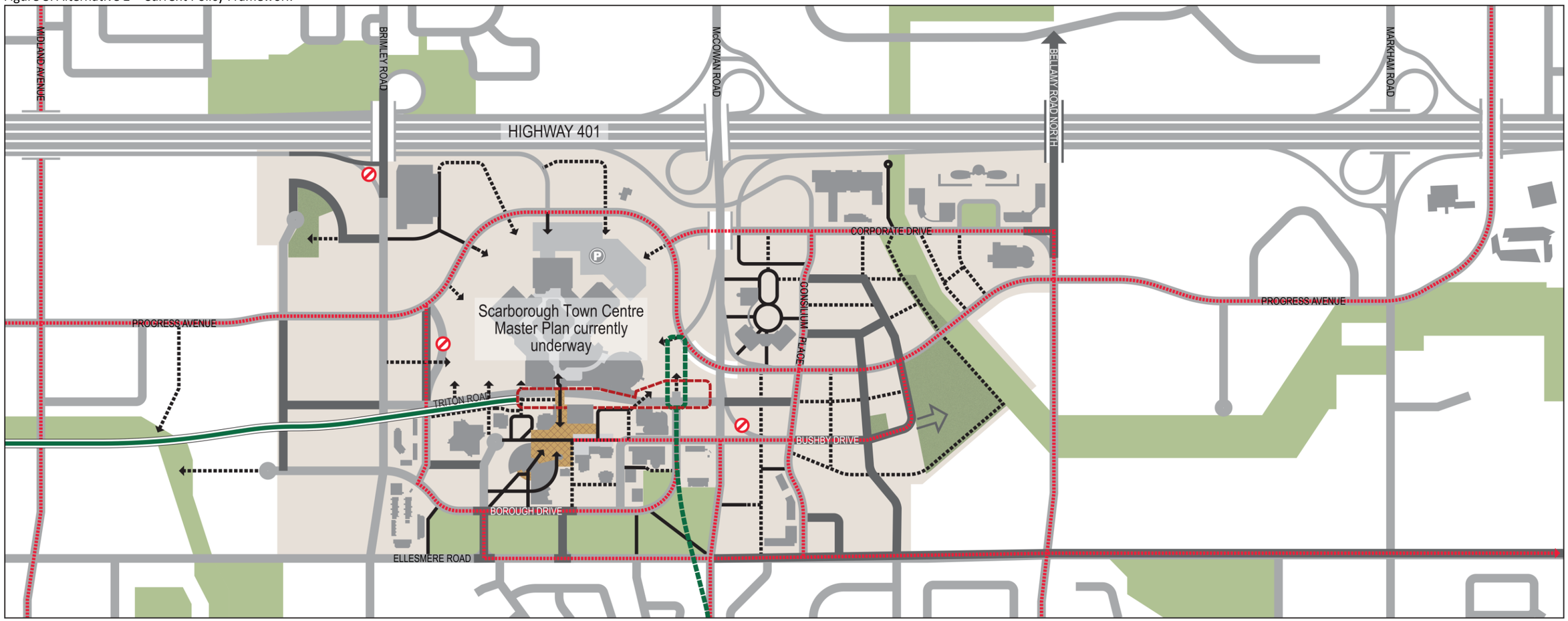
The Scarborough Centre Secondary Plan introduces potential changes such as new, modified and extended public streets, changes to driveways, free-flow vehicular ramp closures, and increased pedestrian and cycling connections. The proposed network would provide a more pedestrian-friendly environment than *Alternative 1* through an improved street grid, better access points as well as enhanced open spaces and boulevard landscaping. Specific Secondary Plan solutions are illustrated in **Figure 8** and summarized below:

- Provide and promote local and regional transit services to connect land uses, access the Centre, and reach surrounding communities
- Promote Scarborough Centre Station as a major transit hub
- Enhance the street network in the Centre through initiatives including but not limited to:
    a. Extension of Bushby Drive to the lands at 705 Progress Avenue, and designating the Bushby Drive Promenade with a generous right-of-way for public green space
    b. Redesign of Brimley Road/Hwy 401 interchange
    c. Reconfiguration of Borough Approach East and West intersections at Ellesmere Road
    d. Widening of Ellesmere Road from McCowan Road to Morningside Avenue
    e. Construction of new streets to divide large parcels of land in the Centre
    f. Creation of a bridge connection from Bellamy Road North to Milner Avenue
    g. Enhancement of the function of Borough Drive between Borough Approach East and West
    h. Elimination of vehicular ramp between Bushby Drive and McCowan Road

The McCowan Precinct Plan further develops the street and block plan and the connections recommended in the Scarborough Centre Secondary Plan. A finer street network of small development blocks with improved connections and public walkways are proposed throughout the area. More specifically, the McCowan Precinct Plan solutions include the following:

- Extension of Bushby Drive through school and park sites to Bellamy Road and beyond
- Creation of publicly accessible lanes, walkways and/or streets to improve connectivity
- Enhancing the Corporate Drive Underpass and Progress Avenue Bridge (including public art, lighting, plants, wide sidewalks, etc.)
- Establishing a 'Gateway' at McCowan Road and Town Centre Court/Bushby Drive
- Creation of dedicated bike lanes on McCowan Road south of Progress Avenue, on Town Centre Court/Bushby Drive Extension from Borough Drive East to the 705 Progress Avenue site
- Marking of bike lanes and/or sharrows on Progress Avenue, Consilium Place/Grangeway Avenue, and Corporate Drive

Figure 8: Alternative 2 – Current Policy Framework



Legend

- Scarborough Centre Secondary Plan Area
- Public Square
- Existing Public Open Space
- Proposed Public Open Space
- Existing Street
- New/Modified Street
- Proposed Bushby Drive Extension TBD
- Proposed Adaptive Re-use of SRT Corridor as Public Linkage
- Existing Connection
- Proposed Connection
- Proposed Road Closing
- Future Dedicated Cycling Facility
- Preferred Subway Station and Line 2 Extension
- Preferred Bus Terminal

0 25 50 100 150 m
SCALE 1:2000

NOTES:
ALL STREETS ARE TO BE DOUBLE-SIDED WITH CONTINUOUS SIDEWALKS

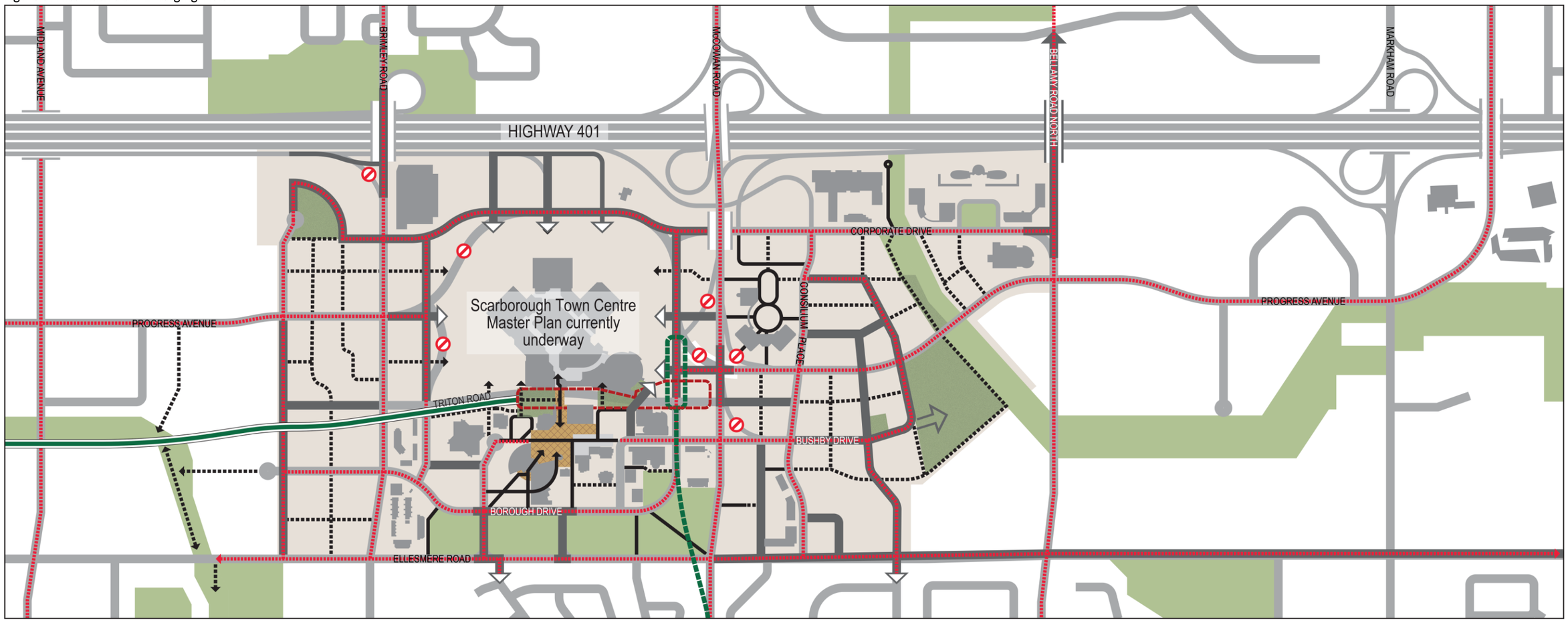
HIGHWAY 401 FACILITIES/INTERCHANGE IMPROVEMENTS: IMPLEMENTATION PENDING MTO REVIEW AND APPROVAL

3.3 Alternative 3 – Emerging Vision

Alternative 3 – Emerging Vision builds upon the current policy framework by outlining detailed connections for each mode of transportation, strategies for Transportation Demand Management (TDM) and Transit-Oriented Developments (TODs). A simplified grid network is proposed along with interchange reconfigurations, appropriately-sized development blocks, and specific improvements for pedestrian and cycling connections. This alternative provides multi-modal solutions that incorporate the Line 2 – Scarborough Subway Extension to Scarborough Centre. The proposed solutions in *Alternative 3 – Emerging Vision* are as follows (**Figure 9**):

- Establish a simplified grid street network that allows for stronger north-south and east-west connections within the Centre and to the surrounding communities
- Create a network of Complete Streets, identifying specific street types and road diets (the removal of traffic lanes to accommodate pedestrians and cyclists) that are applicable for the Centre
- Remove the grade separation at the intersection of McCowan Road and Progress Avenue to allow for better east-west accessibility for all modes of travel
- Enhance east-west connections through Albert Campbell Square by connecting with the proposed Bushby Drive Promenade as a vibrant mixed-use main street in the Centre
- Enhance Borough Drive into a complete Civic Street with a cluster of public landmarks and open spaces.
- Redesign Highway 401 interchanges to accommodate a safe and accessible environment and connections for pedestrians and cyclists
- Reconfigure the form, function and operation of the transportation network along the McCowan Road Corridor to accommodate the new Scarborough Subway Extension and bus terminal
- Determine the function and operation of Triton Road, including transit (bus) access, servicing and routes, as well as connections for active modes of transportation
- Widen Ellesmere Road from McCowan Road to Morningside Avenue to accommodate future transit improvements
- Identify crossing opportunities including mid-block crossing and conflict points that require enhancements for pedestrians and cyclists
- Identify the type and location of parking required within the Centre and recommend appropriate parking strategies to help reduce automobile dependency
- Designate goods movement routes to allow efficient and reliable operations while reducing exposure to pedestrians and cyclists
- Designate pedestrian/cycling connections to encourage the Centre's residents, workers and visitors to rely less on automobiles
- Develop a wayfinding and signage strategy to aid in the navigation of all modes of travel
- Reconfigure the Line 3 – Scarborough infrastructure into green east-west connections and pathways

Figure 9: Alternative 3 – Emerging Vision



Legend

- Scarborough Centre Secondary Plan Area
- Public Square
- Existing Public Open Space
- Proposed Public Open Space
- Existing Street
- New/Modified Street
- Proposed Bushby Drive Extension TBD
- Proposed Adaptive Re-use of SRT Corridor as Public Linkage
- Existing Connection
- Proposed Connection
- Proposed Road Closing
- Future Dedicated Cycling Facility
- Preferred Subway Station and Line 2 Extension
- Preferred Bus Terminal
- Desired Connection

0 25 50 100 150 m
SCALE 1:2000

NOTES:
ALL STREETS ARE TO BE DOUBLE-SIDED WITH CONTINUOUS SIDEWALKS

HIGHWAY 401 FACILITIES/INTERCHANGE IMPROVEMENTS: IMPLEMENTATION PENDING MTO REVIEW AND APPROVAL

4.0 Evaluation of the Alternatives

The three transportation network alternatives were evaluated to determine which option is best suited to accommodate future growth in the study area. The evaluation of alternatives is a highly transparent planning process. Input from the public and key stakeholders is considered through public consultations and other feedback opportunities. The evaluation framework is based on the *Feeling Congested?* Initiative of the City of Toronto and captures many aspects and concepts of transportation planning and city-building. The sections to follow describe the evaluation methodology, the assessment of each alternative based on the questions, criteria and measures identified, as well as a summary of the evaluation (including the identification of the preliminary preferred alternative). The summary and detailed evaluation matrices can be found in **Appendix B.**

4.1 Evaluation Principles and Methodology

The eight evaluation principles developed as part of the City's Official Plan transportation policies review 'Feeling Congested?' were used for this study. These principles establish a common set of decision-making criteria that will help guide decisions on transportation investments.

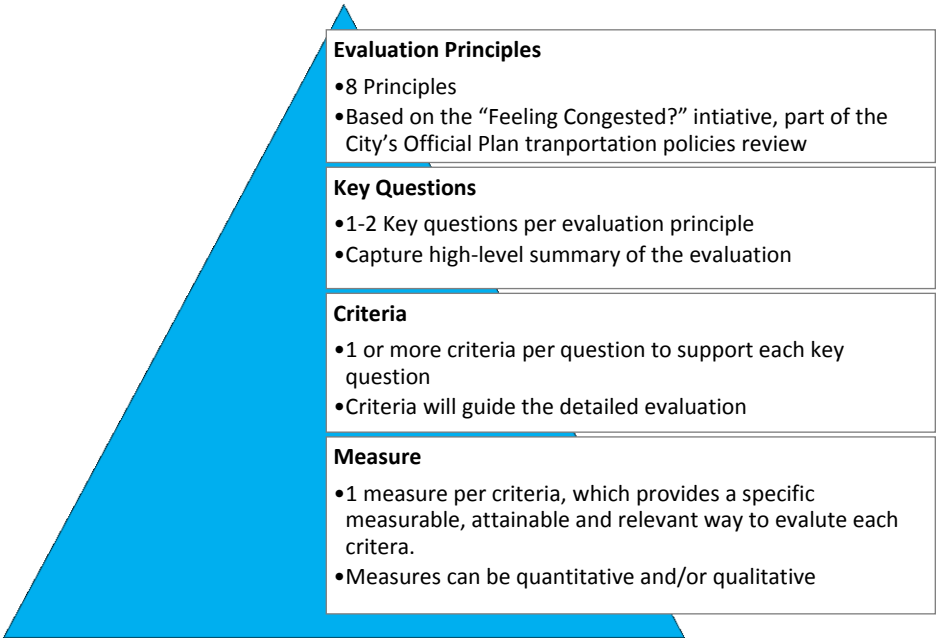
The eight principles fall under three key objectives: Serving People, Strengthening Places, and Supporting Prosperity.

The evaluation methodology is as follows:

- 1 or 2 key questions per evaluation principle, meant to capture the high-level summary output of the evaluation
- Specific criteria are identified to support the key questions. Each key question can have more than one criteria, which are meant to guide how each key question was answered.
- Each criteria can have one or more measures. The measures were specific, measurable, attainable and relevant to the Centre. The measures are qualitative or quantitative in nature and are meant to specifically identify the impact of each alternative. This includes identifying the individual solutions in each alternative and their holistic impacts on the entire study area.

The evaluation methodology adopted in the SCTMP is outlined in **Figure 10**.

Figure 10: Evaluation Methodology



4.2 Serving People

Choice

Does it promote a shift towards sustainable modes of transportation?	Pedestrian and cycling infrastructure	Kilometres of pedestrian sidewalks and cycling lanes within the Centre
Does it provide an efficient and integrated transportation network for all users?	Integration between modes of transportation	Type of transfer points that allow for efficient mixed-mode travel.

It is important to develop a balanced transportation network that provides connected modes of travel. By increasing the pedestrian and cycling infrastructure and improving connections to transit routes, it is possible to decrease auto dependency in the study area. The objective is to evolve the Centre into a multi-modal hub, which can only be achieved through the provision of transportation infrastructure and services that are efficient, attractive, and simple for all travelers.

Alternative 1: Existing Conditions

Overall, Alternative 1 does not facilitate a shift towards sustainable and active modes of transportation due to the fragmented pedestrian network and lack of cycling facilities. The existing street network includes 7.7 km of streets, but only 6.7 km of sidewalks, 0 km of dedicated bicycle lanes, and very few locations that allow for efficient transfers between modes. Individuals can transfer between modes at existing TTC rapid transit stations (Line 3 – Scarborough) and bus stops; however pedestrian connections to these transit stations and stops do not encourage pedestrian transferability.

Alternative 2: Current Policy Framework

Alternative 2 proposes improving the connectivity of active transportation networks, resulting in 10 km of sidewalks and 5 km of dedicated cycling lanes. The new subway station and bus terminal will not be connected by a compatible street pattern due to adjacent grade separations (Progress Avenue and Corporate Drive with McCowan Road) and channelized right turns that limit pedestrian and cycling connections.

Alternative 3: Emerging Vision

Alternative 3 builds upon Alternative 2 to develop a complete street network for all precincts including improved connections between them. Proposed improvements will result in 15 km of sidewalks and 15 km of dedicated cycling lanes, providing greater accessibility to transit facilities by active modes of travel. The normalization of intersections (elimination of channelized right turns) and re-establishing the at-grade intersection of Progress Avenue and McCowan Road will help create an environment that better facilitates a shift towards active and sustainable modes of transportation. In other words, the entire transportation network has been developed to facilitate pedestrian and cycling accessibility to transit and other amenities.

Experience

Key Questions	Criteria	Measure
Does it support an attractive and vibrant public realm and create a sense of place?	Appropriate street type and design that accommodates all modes of transportation	Identify the street type and its adherence to the design principles outlined in the Complete Streets Guidelines
Does it allow for the convenient and safe movement of users of all modes of transportation?	User-friendly signage and wayfinding; active transportation connections	Assessment of the following wayfinding signage components: directional/locational, introduction, identification, and vehicle and pedestrian signage to enhance connections to key origins/destinations

A safe and comfortable experience must be provided for all users. The provision of various transportation options is not enough if these options are unsafe, uncomfortable, or inconvenient to use. The proposed alternatives were evaluated based on the presence of safe pedestrian crossings, comprehensive and consistent signage, designated cycling infrastructure, reduced vehicle ramps and reconfigured interchanges. Additionally, a *Complete Streets* approach must be achieved through attractive and vibrant public spaces and connections.

Alternative 1: Existing Conditions

The existing street network is primarily designed to favour automobile travel. One example of an attractive street is found outside Scarborough Civic Centre Library on Borough Drive, which is in accordance with the Civic Street type and design objectives that aim to enhance the pedestrian experience. Otherwise, Alternative 1 does not support an attractive and vibrant public realm nor does it provide an active transportation network that connects to key origins and destinations. The lack of a uniform, comprehensive system of wayfinding also limits the user experience for all modes as missing, illegible, and inconsistent signage fails to help residents and visitors navigate the Centre.

Alternative 2: Current Policy Framework

Alternative 2 envisions creating a variety of street types that contribute to building streets for people, placemaking and prosperity. The Scarborough Centre Secondary Plan provides a mixed-use strategy, with particular emphasis on housing and employment development for Brimley Road and McCowan Road. These changes will contribute to an attractive and vibrant public realm, but the absence of a defined wayfinding strategy will impede the use of these improved streets.

Alternative 3: Emerging Vision

Alternative 3 develops design principles for a variety of street types based on the *Complete Street Guidelines*. The street types will allow for a balanced transportation network that supports all modes of travel and will combine with adjacent land uses and public spaces to develop a vibrant urban centre.

A comprehensive wayfinding strategy is also proposed in Alternative 3 to further improve the convenience and safety of travel within and to/from the Centre. This will help automobile drivers, transit users, pedestrians, and cyclists navigate major destinations and connections, while also providing a unique character to the Centre.

Social Equity

Key Questions	Criteria	Measure
Does it provide for opportunities to improve connectivity to work, school and other destinations?	Changes in accessibility to desired destinations	Number of connections
Does it accommodate all users, including vulnerable street users?	Improves mobility for vulnerable users	Compliance with Accessibility for Ontarians with Disabilities Act (AODA).

Everyone must have equal and desirable access to work, school and other activities. Transportation options should not favour any group over another. To reduce barriers to mobility in the study area, transportation programs and services must comply with the Accessibility for Ontarians with Disabilities Act (AODA) and be accessible for all.

Alternative 1: Existing Conditions

Major destinations, including school, employment, and commercial institutions are difficult to access, particularly by active modes of transportation. Complex intersections (i.e McCowan Road and Progress Avenue) make it difficult to access key destinations and transit routes. Existing conditions in Scarborough Centre also fail to accommodate vulnerable users and do not fully comply with AODA requirements.

Alternative 2: Current Policy Framework

The policy context for creating a well-defined, cohesive and connected public realm is provided in Alternative 2; however, Alternative 2 does not improve all accessibility deficiencies in the network to accommodate vulnerable street users.

Alternative 3: Emerging Vision

In Alternative 3, it is recommended that all major destinations and transportation facilities be made accessible, which includes retrofitting existing connections and adding newly accessible pedestrian connections in the study area. To comply with AODA, Alternative 3 also provides design guidelines and policy recommendations for all transportation facilities for the study area (streets, ramps, intersections, parking, transit stops and transfers, wayfinding, and crossings).

4.3 Strengthening Places

Shaping the City

Key Questions	Criteria	Measure
Does it support the mixed-use and transit-oriented vision of the Secondary Plan?	Reflects planning policies	Compliance with the vision of the Scarborough Centre Secondary Plan as outlined in policies relating to transportation and mobility
Does it create a transportation network and block plan that supports a vibrant urban centre?	Consistency with mixed-use principles	Simplified grid/street network (average block size)

The proposed transportation network will be used to encourage mixed-use and sustainable developments in the study area. The area must not only attract investments from developers but must ensure the developments are attractive destinations. Transportation solutions should follow an approach that contributes to place-making and city-building.

Alternative 1: Existing Conditions

Large development blocks and segregation of land uses create an environment that is not conducive to transit-oriented development or mixed-use planning principles as envisioned by the Secondary Plan. Intersection spacing is generally greater than 150 metres in existing conditions, which produces large development blocks and encourages automobile dependency.

Alternative 2: Current Policy Framework

The street network in Alternative 2 consists of smaller block sizes for the McCowan, Civic, and Town Centre Commercial Precincts, with intersection spacing ranging from 80 to 150 metres and development parcels ranging from 0.36 to 0.7 hectares. The simplified grid street network in this alternative produces an environment that better supports pedestrian and cycling activity and reflects planning principles. While Alternative 2 complies with the current policy framework for Scarborough Centre, it identifies that further work is needed for planning a complete transportation network and facilities.

Alternative 3: Emerging Vision

The emerging vision recommends a transportation master plan for new transportation facilities throughout the study area and provides recommendations for transit-oriented developments surrounding new transit investments. Building upon Alternative 2, a fine-grained street network is proposed for the rest of the Scarborough Centre area, where intersection spacing is provided at a distance of 80 to 120m to encourage the use of active modes of transportation. The simplified grid street network and smaller development blocks will help create a vibrant urban centre that is consistent with mixed-use planning principles.

Healthy Neighbourhoods

Key Questions	Criteria	Measure
Does it improve connectivity and access within the Centre and to/from surrounding communities?	Review of impact to safety and comfort for all modes	Road diets, safe pedestrian and cycling crossing locations, the operation of bus routes/stops in the Centre and the removal of channelized right turns and ramps
Does it encourage and support active and sustainable modes of transportation?	Incentive measures to promote active modes of transportation	Number of TDM measures

Promotion of safe walking and cycling is integral to building connections within the Centre and to/from surrounding neighbourhoods. A complete pedestrian and cycling network with separation from heavy trucks and vehicular traffic encourages active transportation and increased access to the Centre and surrounding communities. Active transportation, physical activity, and social interaction can be achieved through a public realm that supports a *Complete Streets* approach.

Alternative 1: Existing Conditions

Alternative 1 does not provide adequate connections to surrounding communities nor does it provide comfort and safety for all modes. Three channelized right turns, 11 ramps, and complex bus routes limit the connectivity and accessibility within and between the Centre and surrounding communities.

Very few TDM measures exist in Scarborough Centre to encourage a switch from automobile use to active and sustainable modes of transportation. Bicycle parking at rapid transit stations, private car share companies, and a limited number of workplaces with Smart Commute programs are the few existing TDM measures in place.

Alternative 2: Current Policy Framework

Alternative 2 identifies the need to improve connections by removing grade separation and channelized right turns, but only specifies reconfiguration of the Brimley Road off-ramp. Changes necessary for improving local bus routes are also not addressed in the Secondary Plan or McCowan Precinct Plan.

The Scarborough Centre Secondary Plan generally identifies TDM strategies to reduce auto-dependency, including car share programs, TDM programs that encourage transit usage, and reduced parking supply.

Alternative 3: Emerging Vision

The transportation network in Alternative 3 will improve connectivity, safety, and comfort through the reconfiguration of complex intersections into T-section configurations. More specifically, this alternative will include the removal of ramps and channelized right turns to improve bus routing and provide a safer pedestrian and cyclist crossing environment.

To further encourage active and sustainable modes of transportation, this alternative aims to expand existing car share and outreach programs, while also establishing two new TDM strategies in the Centre: a bike share program and a demand-responsive transit service that operates within the Centre and can be requested via a mobile app.

Public Health & Environment

Key Questions	Criteria	Measure
Does it minimize the impact on the natural environment and cultural heritage?	Impact on area ecology, built/cultural heritage and areas with archaeological potential	Size of area and number of features affected
Does it support and enhance the open space network?	Improves open space connections in the study area	Number of connections to open space areas for all modes of transportation

Transportation improvements should support and enhance natural areas and encourage less vehicle reliance. Parks and open spaces connect people and places and contribute to developing vibrant and sustainable communities.

Alternative 1: Existing Conditions

No changes will be made to transportation networks in Alternative 1 and, therefore, there will be no impact on natural or cultural heritage areas or areas with archaeological potential. While existing open spaces will be maintained in this alternative, Alternative 1 does not propose new open spaces connections.

Alternative 2: Current Policy Framework

Alternative 2 promotes the enhancement of the natural environment to improve the livability and sense of place in the Centre. However, there is potential for negative impacts to the natural and cultural heritage in the study area to implement the proposed transportation network changes. Some proposed changes to the transportation network may conflict with areas of archaeological potential, such as the proposed extension of Bushby Drive and reconfiguration of the Highway 401/Brimley Road interchange.

Alternative 3: Emerging Vision

Alternative 3 has the greatest potential for impacts on ecology, built/cultural heritage and areas of archaeological potential due to proposed network changes and the development of unoccupied parcels of land. As identified in the Stage 1 Archaeological Assessment, further surveying is needed at the McCowan Road and Progress Avenue intersection as well as the intersection at Borough Drive and Brimley Road to determine the archaeological impact of modifying these intersections and surrounding land.

This alternative does, however, enhance the open space network by offering new connections to parks and open spaces throughout the Centre and incorporating wayfinding with trails and green spaces.

4.4 Supporting Prosperity

Affordability

Key Questions	Criteria	Measure
Is it economically feasible to implement (considering full life cycle costs, impact to utilities, durability and future expansion opportunities)?	Implements improvements considering full life cycle costs, impact to utilities, durability and future expansion opportunities	Capital, operating, and maintenance costs

Improvements to the transportation system should be affordable to build, maintain, and operate.

Alternative 1: Existing Conditions

Alternative 1 is the most economically feasible solution to implement because existing infrastructure only requires maintenance costs; minor and/or major bridge repairs will be required to maintain existing structures in addition to asphalt repairs.

Alternative 2: Current Policy Framework

Capital resources are required for developing Alternative 2 solutions, including street extensions and widening, vehicular ramp reconfiguration and/or elimination, highway interchange and intersection redesign, new street construction to divide existing parcels of land, bridge construction, creation of dedicated bike lanes and pavement markings, and enhancements to street function and design.

Alternative 3: Emerging Vision

The emerging vision is the least economically feasible alternative to implement due to the significant capital, operating and maintenance costs to be incurred in addition to those outlined in Alternative 2. Significant investments are necessary for transportation network improvements, which include removing grade separations, redesigning highway interchanges, accommodating the proposed subway extension and bus terminal, designing truck routes, enhancing pedestrian and cycling networks and connections, developing and implementing a wayfinding strategy, and generally creating street and pathway improvements.

Supporting Growth

Key Questions	Criteria	Measure
Does it encourage public and private investments?	Unlocks the potential for development	Size/number of new development properties and accessibility to transit
Does it allow for the safe and efficient movement of goods?	Strategic movement of goods in the Centre	Number of designated and segregated truck routes in the study area

Transportation solutions should encourage economic growth and allow goods and products to be moved efficiently and safely. A comprehensive transportation network can also attract economic growth and private investments to the area, making the Centre a more attractive destination for residents and employers.

Alternative 1: Existing Conditions

The existing street network and large development blocks allow for the development of segregated land uses rather than high density and mixed land uses, limiting the economic benefits that are possible from new developments. The existing transportation network also does not allow the safe and efficient movement of goods due to the lack of designated truck routes. Trucks typically must perform unsafe movements across pedestrian environments, particularly in Scarborough Town Centre shopping mall where loading facilities are located in close proximity to pedestrian crossings.

Alternative 2: Current Policy Framework

Alternative 2 unlocks potential for development in the McCowan Precinct, Civic, and Town Centre Commercial Precincts, but does not comprehensively address the study area or support the accessibility of the proposed subway extension and bus terminal. Furthermore, Alternative 2 does not address the movement of goods or propose designated truck routes, failing to provide improvements to existing conditions with respect to safety and efficiency of goods movement.

Alternative 3: Emerging Vision

Building upon the Secondary Plan, Alternative 3 unlocks development potential in several locations in the Centre, including the Brimley Precinct, through reconfiguration of the street network to provide stronger access for pedestrians and cyclists to the new transit investments and other amenities.

Based on consultation with stakeholders and the Goods Movement Survey, Alternative 3 also recommends developing designated truck routes that are separated from non-motorized modes of transportation and improves road and intersection design. This will make it easier and more efficient for the movement of goods and will reduce the amount of conflicts between shipment vehicles and other modes.

4.5 Summary of Evaluation

Each of the three transportation network alternatives was evaluated based on the extent to which it meets the criteria for each key principle. Individual measures were used to determine if the alternatives meet, partially meet, or do not meet the specified criteria. A high level overview of the evaluation results is presented in **Table 1** and detailed evaluation matrices can be found in **Appendix B.**

Alternative 1: Existing Conditions

- Favours automobile travel over active and sustainable modes of transportation
- Will not meet targets set out by the provincial and municipal plans as the population increases

Alternative 2: Current Policy Framework

- Provides a strong vision for Scarborough Centre to become a vibrant urban hub by establishing a high-level transportation strategy that encourages pedestrian and cycling activity
- Details a proposed urban fabric and provides design guidelines for the McCowan, Civic, and Town Centre Commercial Precinct
- Creates a policy framework for improving inter-precinct connections, and connections to/from the surrounding communities, but mandates a more comprehensive transportation master plan to be conducted for the Centre

Alternative 3: Emerging Vision (Preliminary Preferred Alternative)

- Supports and builds upon the vision of the Scarborough Centre Secondary Plan and subsequent planning documents
- Provides a detailed list of solutions that have a holistic impact on the transportation network in the Centre, specifically encouraging a multi-modal approach
- Supports public investments in transit by proposing a transportation network that supports the future subway station and bus terminal, unlocking potential for Transit Oriented Development and complete communities, to encourage strong transit ridership
- Examines the Brimley Precinct, inter-precinct connections, and connections to/from surrounding communities, including how pedestrians and cyclists will access the Centre through new transit investments

Table 1: Summary Evaluation Matrix

Principle	Alternative 1: Existing Conditions	Alternative 2: Current Policy Framework	Alternative 3: Emerging Vision
Choice	No	Partially	Yes
Experience	No	No	Yes
Social Equity	Partially	Partially	Yes
Shaping the City	No	Partially	Yes
Healthy Neighbourhoods	No	Partially	Yes
Public Health & Environment	Partially	Partially	Partially
Affordability	Yes	Partially	Partially
Supporting Growth	No	Partially	Yes

5.0 Next Steps

The SCTMP is moving forward with **Alternative 3: Emerging Vision** as the preliminary preferred alternative for Scarborough Centre's future transportation network. Extensive public consultation and engagement is being conducted to gather input from key stakeholders and the public on the results of the evaluation and the preliminary preferred alternative.

The following are the upcoming deliverables for the Scarborough Centre Transportation Master Plan (SCTMP):

- Goods Movement Survey results and analysis
- Detailed connections/layers for the following transportation elements of the emerging vision/preliminary preferred alternative:
  - Street Network
  - Block Structure
  - Walking and Cycling Network
  - Transit Network
  - Transit-Oriented Development and TDM Strategies
  - Goods Movement
  - Street type design guidelines (based on the *Complete Streets Guidelines*)
- Implementation plan for the SCTMP (prioritization of solutions)

APPENDIX A

Quantitative Multi-Modal Assessment

Scarborough Centre on the move building connections

Table of Contents

1.0 Introduction

Building upon Progress Memo #1, a quantitative multi-modal assessment was conducted to evaluate the existing performance of all transportation facilities within the Scarborough Centre Transportation Master Plan (SCTMP) study area. This includes quantifying the demand, utilization, comfort, convenience, conditions and level of service (LOS) for pedestrians, cyclists, transit riders and automobile drivers within Scarborough Centre. It should be noted that the goods movement analysis is currently being undertaken and will be provided at a later stage, pending consultations with the relevant stakeholders.

2.0 Methodology

The criteria used to quantitatively evaluate each mode of transportation differ. **Table 1** summarizes the method and resources used for each mode of travel:

Table 1: Summary of Approach

Mode	Methodology	Outcome
Pedestrian	Pedestrian LOS in this report is measured using the following criteria: Sidewalk width, grass or paved boulevard width from the sidewalk to travel lane, the presence of on-street parking, traffic volumes and operating speeds.	Identification of segments within the study area that have the best and worst pedestrian conditions.
Cycling	Cycling LOS evaluates the presence or absence of cycling infrastructure within the study area. The following criteria were used to determine cycling LOS: Bicycle lane width, curb lane width, on-street parking, heavy vehicle volume, overall traffic volume, the percentage of right and left turns, speed limit and the number of travel lanes.	Identification of segments within the study area that have the best and worst cycling conditions.
Transit	The transit analysis focuses on surface bus routes within the study area, examining departure and arrival demand and utilization, the presence of stops with a shelter and/or bench. Analysis for Line 3 – Scarborough was not conducted due to the anticipated Scarborough Subway Extension	Identification of the bus stops, routes and intersections that have the strongest demand and utilization in the study area.
Automobile	The Highway Capacity Manual (HCM), Synchro Version 8 and InterCalc software were used to evaluate operational conditions. This includes quantifying volume/capacity ratio (V/C), delay and queue lengths, peak hour factors, and percentage of heavy truck vehicles (based on existing network configuration), traffic volumes and signal timing for intersections within the study area.	Identification of intersections/approaches with traffic constraints.

3.0 Pedestrian

Historically, the assessment of transportation services has primarily focused on vehicular traffic, with no existing and widely accepted standard LOS rating for pedestrians and cyclists. Nevertheless, quantifying the walking experience within the study area is important to identify areas with needed improvements. An analysis of pedestrian LOS was conducted, based on the table identified in **Appendix A**. The availability of sidewalks within the study area is shown in **Figure 1**.

As shown in **Figure 2**, the majority of pedestrian infrastructure in the Centre is an LOS E. LOS E is largely characterized by fragmented and disconnected sidewalk infrastructure, narrow sidewalks, high traffic speeds, and lack of physical separation between sidewalks and streets.

The Town Centre Commercial Precinct, which mainly encompasses the Scarborough Town Centre shopping mall, is predominately an LOS F, which indicates the absence of safe pedestrian infrastructure. LOS F streets signify that sidewalks are either entirely absent or are less than 1.5 metres in width. Examples of absent sidewalks are found on the west side of Brimley Road, Triton Road (**Figure 3**), and many segments of Progress Avenue near the Scarborough Town Centre shopping mall. Road channelization and lack of designated pedestrian crossings compound the negative impact of missing sidewalks and therefore limit pedestrian activity throughout the Centre.

Figure 1: Existing sidewalks in the SCTMP study area

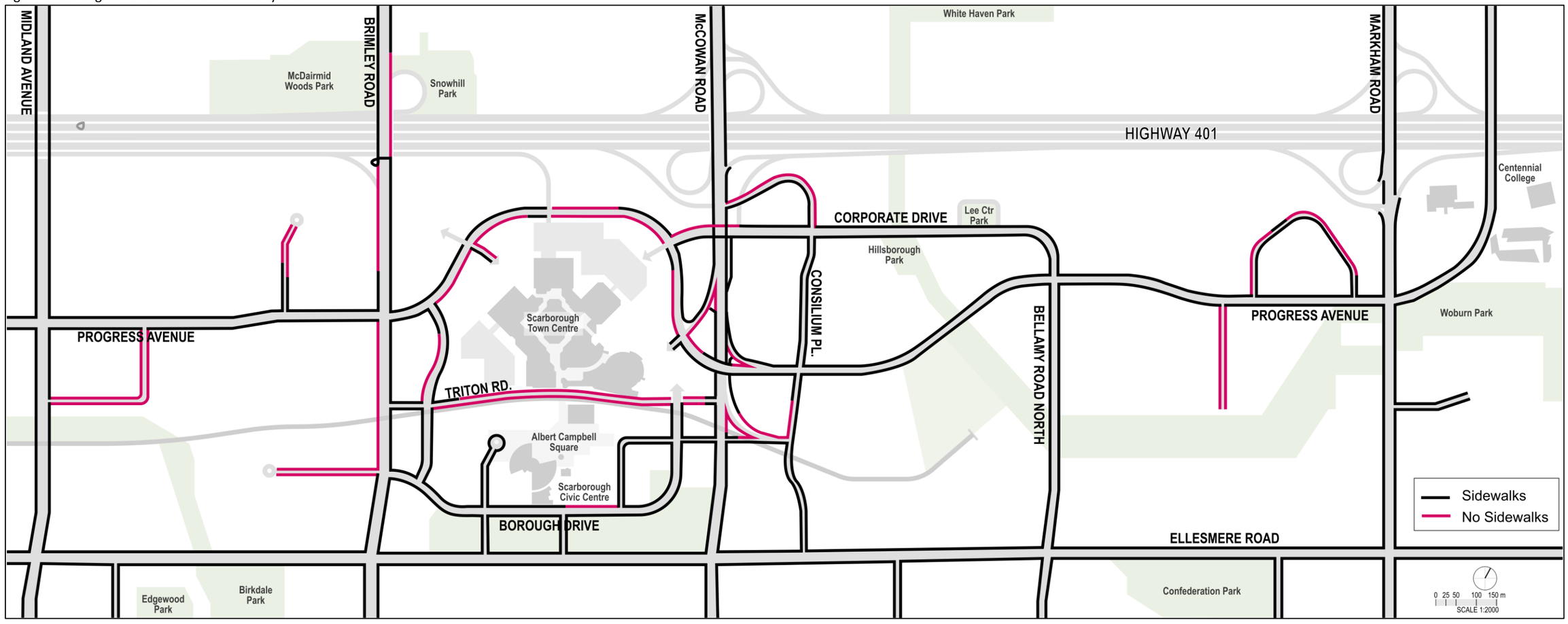
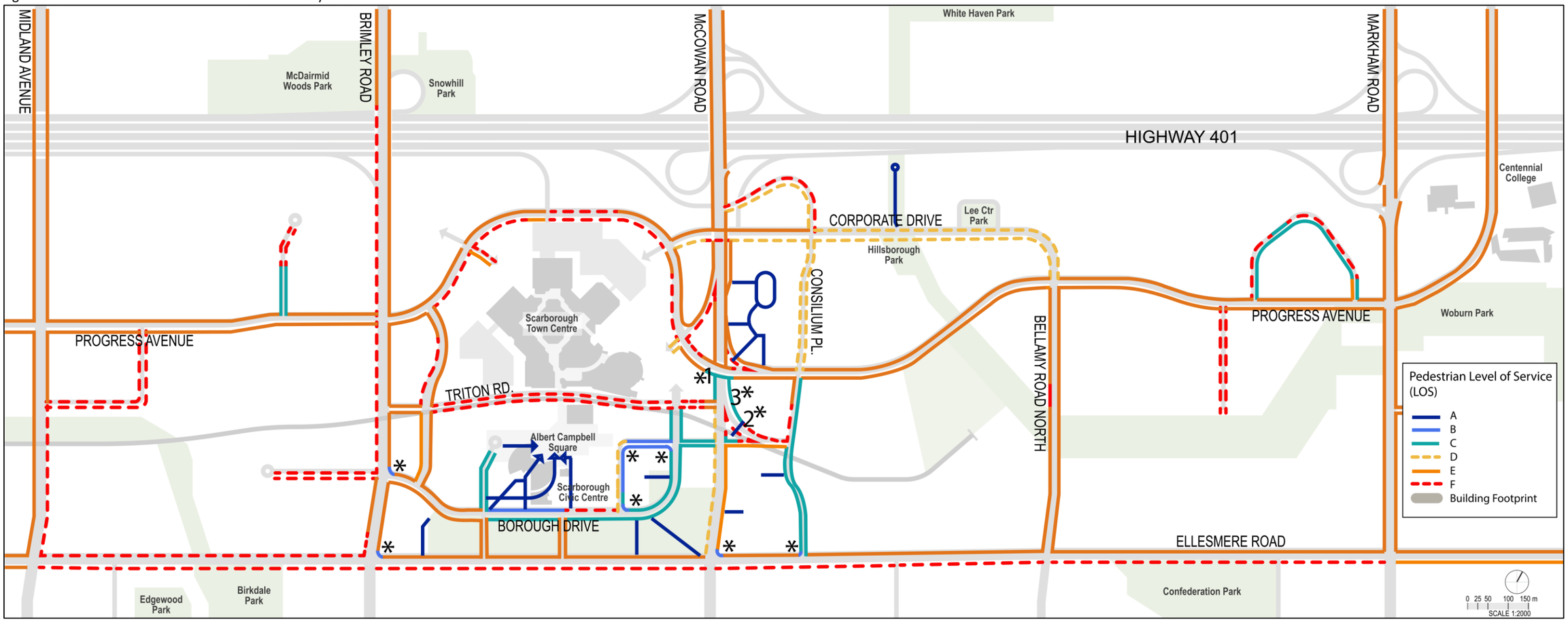


Figure 2: Pedestrian level of service in the SCTMP study area



Notes:
1 Enclosed pedestrian walkway on Progress Avenue bridge
2 Enclosed pedestrian bridge from McCowan TTC station
3 Separated pedestrian path that connects Progress Avenue pedestrian walkway (1) to the bridge from McCowan TTC Station (2); presence of street trees and other street enhancements
*Given LOS A despite failure to meet criteria; represents sidewalk enhancements (e.g. lighting, seating, streetscaping)

Figure 3: Triton Road (LOS F) (Source: Google Street View)

The highest pedestrian LOS identified in the study area is an LOS A, which was assigned to separated pedestrian trails and walkways. The highest rating given to a sidewalk in the area, however, was LOS B. A Level of service B score indicates a pleasant pedestrian experience. Examples of this type of environment are found on Town Centre Court and segments of Borough Drive (**Figure 4**). The wide walkways, street trees, and parked cars act as buffers from the motorized traffic, contributing to the safety, comfort, and overall ambiance of the area. Furthermore, a limited number of streets do provide pedestrian-friendly sidewalks and other amenities that facilitate pedestrian activity, which is not captured in the pedestrian LOS table.

Figure 4: Borough Drive (LOS B)

The street segments where sidewalk improvements have been made are marked with an asterisk in **Figure 2.** For example, the northeast corner of Brimley Road and Ellesmere Road (**Figure 5**) provides a large open space for pedestrians that is not accounted for in the pedestrian LOS table found in **Appendix A**.

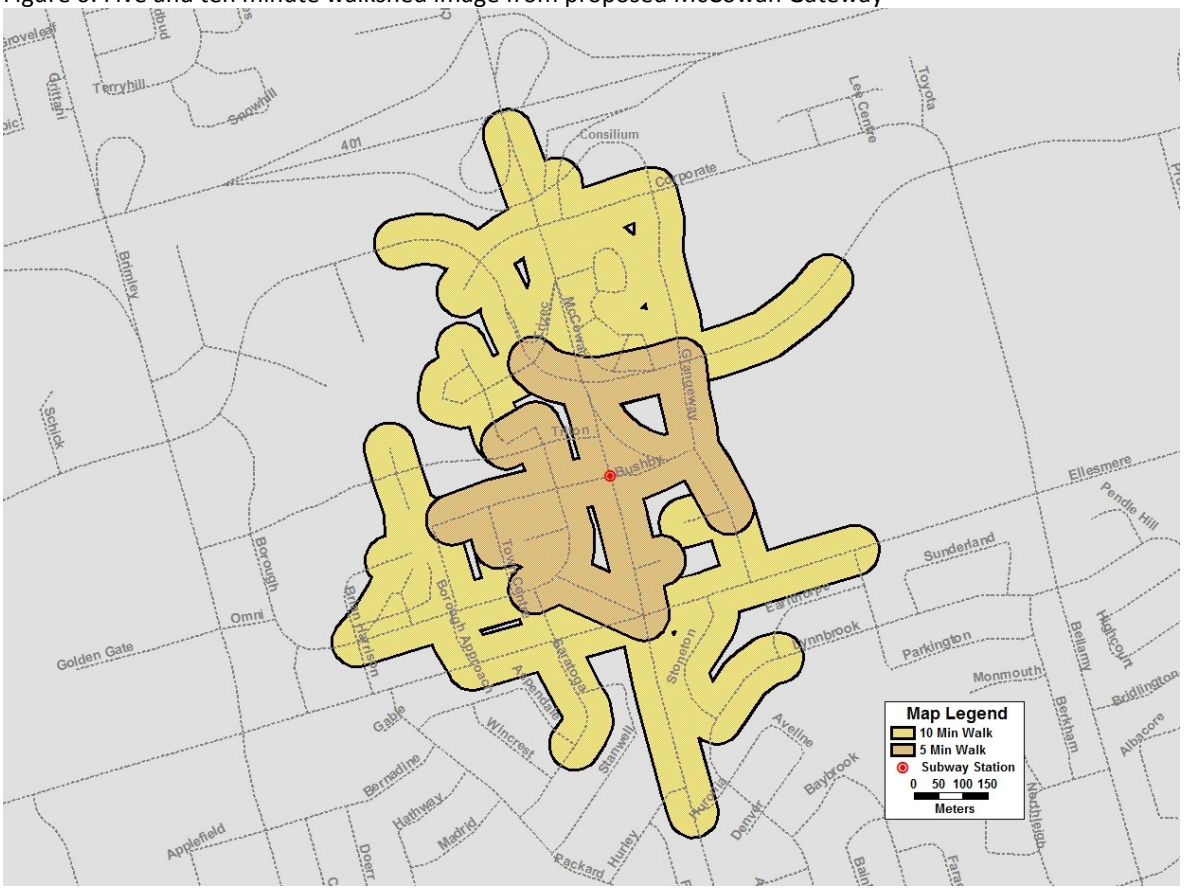
Figure 5: Northeast corner of Brimley Road and Ellesmere Road provides an improved pedestrian experience (Source: Google Street View)

While pedestrian LOS measures can be used to highlight areas where the built environment fails to provide adequate active transportation infrastructure, there are limitations to this method as these objective measures only capture some of what is occurring. These measures do not provide insight into how pedestrians perceive the quality of their environment nor do they represent a diversity of experiences within the pedestrian population (e.g. vulnerable users such as the elderly and disabled). Other studies of pedestrian LOS incorporate qualitative information on comfort, convenience, and perceived safety of pedestrian routes. In situations where the LOS rating determined by the table was overruled by a more accurate rating based on qualitative assessment of the area, streets were marked with an asterisk. Qualitative measures that were examined as part of Progress Memo #1, and incorporated into Figure 2, include the following:

- **Mobility:** Grade of path, crossing delay or detour
- **Safety:** Exposure to vehicles at mid-blocks. Exposure to vehicles at crossings
- **Access:** Crossing opportunities and level of access
- **Information:** Traveler information available including signage and wayfinding
- **Amenity:** Footpath pavement conditions, comfort and convenience features, security, aesthetics

Figure 6 illustrates the 5 and 10-minute walkshed image originating at the proposed McCowan Gateway at the intersection of McCowan Road and Bushby Drive/Town Centre Court. The location was chosen based on its proximity to existing and proposed transit. As this figure shows, individuals can travel north as far as Highway 401 and can walk south of Ellesmere Road within 10 minutes. Greater impedance exists with respect to travelling east-west across the study area. Overall, the existing walkability of Scarborough Centre, is limited by the existing coarse auto-oriented street pattern.

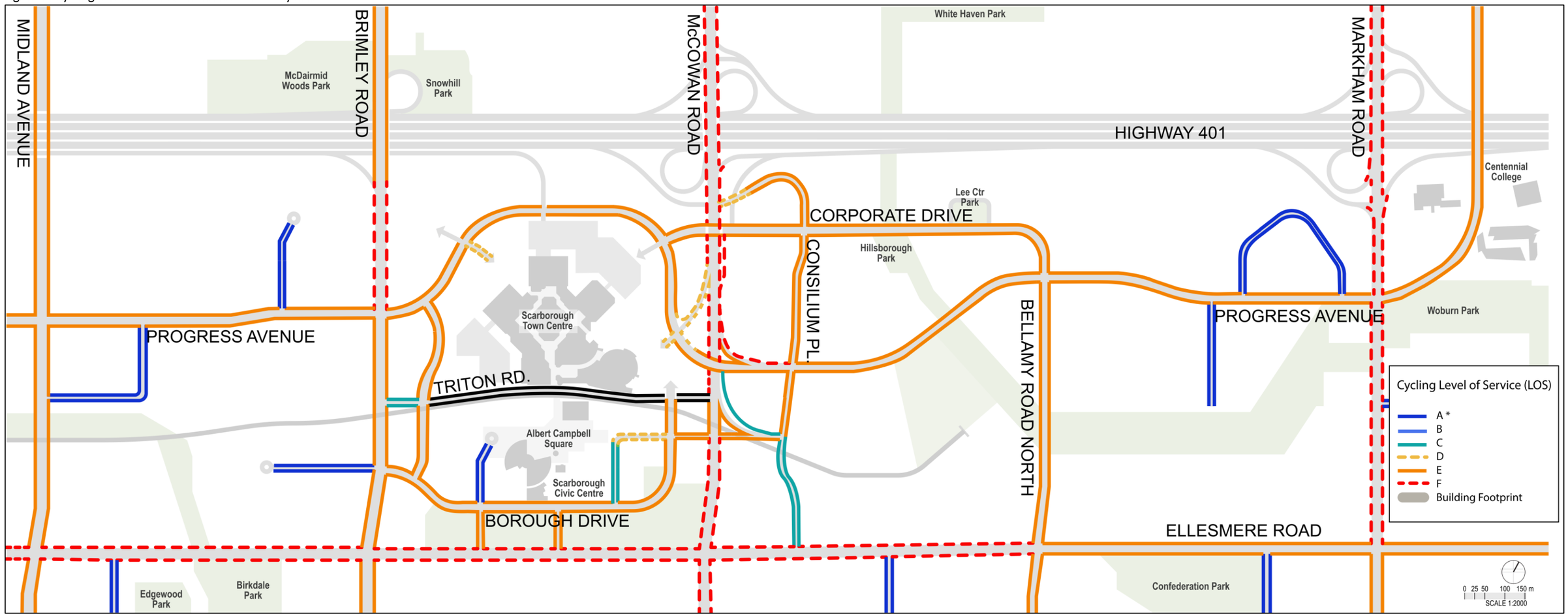
Figure 6: Five and ten minute walkshed image from proposed McCowan Gateway



4.0 Cycling

An analysis of cycling LOS was conducted based on the LOS table identified in **Appendix A**. Overall, it can be concluded that the current cycling level of service in the study area is poor**.** There are no dedicated cycling facilities present, causing the majority of streets to be categorized as LOS E or F (**Figure 7**). LOS E or F indicates the absence of a dedicated cycling lane with relatively high traffic volumes and speeds of 60 km/h (e.g. Midland Avenue, Progress Avenue, Brimley Road, Ellesmere Road, McCowan Road, and Markham Road). This creates a dangerous cycling environment, as higher speeds result in less comfortable environments for cyclists.

Figure 7: Cycling level of service in the SCTMP study area



*Meets criteria for LOS A; however, no separation is provided between cyclists and other modes of transportation, producing unsafe/uncomfortable cycling conditions

Based on the above, a large number of conflict zones exist for cyclists in the study area, including the Highway 401 on and off ramps, arterial roads, grade separations, and major intersections. Overall, the existing conditions contribute to the poor cycling performance of the streets, which currently represent a deterrent to cycling within the study area.

Slower traffic speeds on industrial roads (e.g. Schick Court, Cosentino Drive) make it intrinsically safe for cyclists according to the LOS table, resulting in level of service (LOS) A scores. However, achieving LOS A does not necessarily mean that it is safe to be used by most cyclists. For example, Schick Court (**Figure 8**) is mostly used by heavy trucks, making it less comfortable or accessible for cyclists.

Figure 8: Schick Court (Source: Google Street View)

5.0 Transit

Scarborough Centre is a major transportation hub, with strong transit services via rapid transit (Line 3 – Scarborough) and local and regional bus routes. This includes 14 TTC bus routes (regular and express routes), 4 GO-Transit Buses, regional transit services (Greyhound, Coach Canada and Megabus). Detailed analysis of each TTC bus route and stop within the study area can be found in **Appendix B**. Analysis for TTC Line 3 - Scarborough was not conducted due to the anticipated Scarborough Subway Extension.

Ridership data provided by the TTC indicates a given route's boardings, alightings, and average load for the morning and afternoon peaks hours. The date and source of the transit data for each route is provided in **Table 2**. The capacities of each TTC route were calculated as a function of the number of transit vehicles per peak hour on the date of the survey, the type of transit vehicle and the transit vehicle's capacity. The ridership demand is a function of the average load before or after boarding. The transit vehicle utilization percentage has been separated as before the transit stop (arrival demand) and after the transit stop (departure demand). It should be noted that bus services provided by the TTC fluctuate based on observed demand. The existing TTC transit capacity analysis is summarized in **Table 3** and **Table 4.**

Table 2: Date and Source of Transit Ridership Data

TTC Route	Date of Survey	Source
9 Bellamy	September 6, 2015	TTC
16 McCowan	February 14, 2014	TTC
21 Brimley	January 31, 2015	TTC
38 Highland Creek	March 8, 2013	TTC
43 Kennedy	January 27, 2012	TTC
95 York Mills	October 22, 2013	TTC
129 McCowan North	October 3, 2014	TTC
130 Middlefield	January 8, 2013	TTC
131 Nugget	December 8, 2014	TTC
133 Neilson	January 11, 2013	TTC
134 Progress	April 2, 2013	TTC
169 Huntingwood	May 26, 2015	TTC
190 Scarborough Rocket	December 8, 2015	TTC
199 Finch Rocket	January 5, 2016	TTC

Table 3: Highest utilization of TTC bus stop (per route) within Scarborough Centre during the morning peak hour (ranked based on departure)

Route	Direction	Location	Capacity *	Departure Demand	Departure Utilization **	Arrival Demand	Arrival Utilization **
AM PEAK HOUR							
134 Progress	NB	Scarborough Centre Station	742	593	80%	0	0%
129 McCowan North	SB	Triton Road at McCowan Road	636	469	74%	469	74%
133 Neilson	SB	Ellesmere Road at Bellamy Road North	371	270	73%	266	72%
131 Nugget	WB	Triton Road at McCowan Road	477	319	67%	318	67%
95 York Mills	WB	Ellesmere Road at Brimley Road	848	523	62%	477	56%
130 Middlefield	SB	McCowan Road at Triton Road	265	160	60%	161	61%
38 Highland Creek	WB	Ellesmere Road at McCowan Road	424	254	60%	231	54%
21 Brimley	SB	Brimley Road at Progress Avenue	530	290	55%	290	55%
9 Bellamy	NB	88 Corporate Drive	212	95	45%	81	38%
16 McCowan	NB	McCowan Road at Ellesmere Road	477	209	44%	214	45%
190 Scarborough Centre Rocket	WB	Scarborough Centre Station	636	224	35%	14	2%
43 Kennedy	NB	Progress Avenue at Midland Avenue	265	54	20%	51	19%
199 Finch Rocket	WB	Scarborough Centre Station	1219	167	14%	14	2%
169 Huntingwood	EB	McCowan Road at Triton Road	159	17	11%	16	10%

*Assume capacity of buses is 53 persons (Orion VII)

**Departure and arrival utilization is based on observed conditions at the time of survey, but is not a fixed value. It is expected that the TTC will adjust services based on an increase or decrease in demand.

Table 4: Highest utilization of TTC bus stop (per route) within Scarborough Centre during the afternoon peak hour (ranked based on departure)

Route	Direction	Location	Capacity *	Departure Demand	Departure Utilization **	Arrival Demand	Arrival Utilization **
PM PEAK HOUR							
133 Neilson	NB	Ellesmere Road at McCowan Road	477	418	88%	405	85%
129 McCowan North	NB	McCowan Road at Progress Avenue	795	683	86%	675	85%
21 Brimley	NB	Brimley Road at Progress Avenue	371	301	81%	292	79%
131 Nugget	EB	McCowan Road at Progress Avenue	424	329	78%	329	78%
38 Highland Creek	WB	Ellesmere Rd at Dolly Varden Boulevard	583	452	78%	441	76%
134 Progress	SB	100 Consilium Place	636	460	72%	437	69%
95 York Mills	EB	Ellesmere Road at Birkdale Road	265	190	72%	188	71%
16 McCowan	SB	McCowan Road at Ellesmere Road	530	322	61%	276	52%
9 Bellamy	SB	Bellamy Road North at Ellesmere Road	212	126	59%	111	52%
130 Middlefield	NB	McCowan Road at Progress Avenue	265	133	50%	131	49%
43 Kennedy	SB	Progress Avenue at Cosentino Drive	212	93	44%	90	42%
190 Scarborough Centre Rocket	WB	Scarborough Centre Station	795	318	40%	15	2%
199 Finch Rocket	WB	Scarborough Centre Station	795	199	25%	15	2%
169 Huntingwood	EB	McCowan Road at Triton Road	159	17	11%	18	11%

*Assume capacity of buses is 53 persons (Orion VII)

**Departure and arrival utilization is based on observed conditions at the time of survey, but is not a fixed value. It is expected that the TTC will adjust services based on an increase or decrease in demand.

The transit network, as shown in **Figure 9**, has 37 bus shelters, 28 marked bus stops, and 3 rapid transit (Line 3 - Scarborough) stops. It should be noted that TTC buses stop at the Scarborough Centre Bus Terminal, with the exception of the 95 York Mills bus route, which services stops along Ellesmere Road.

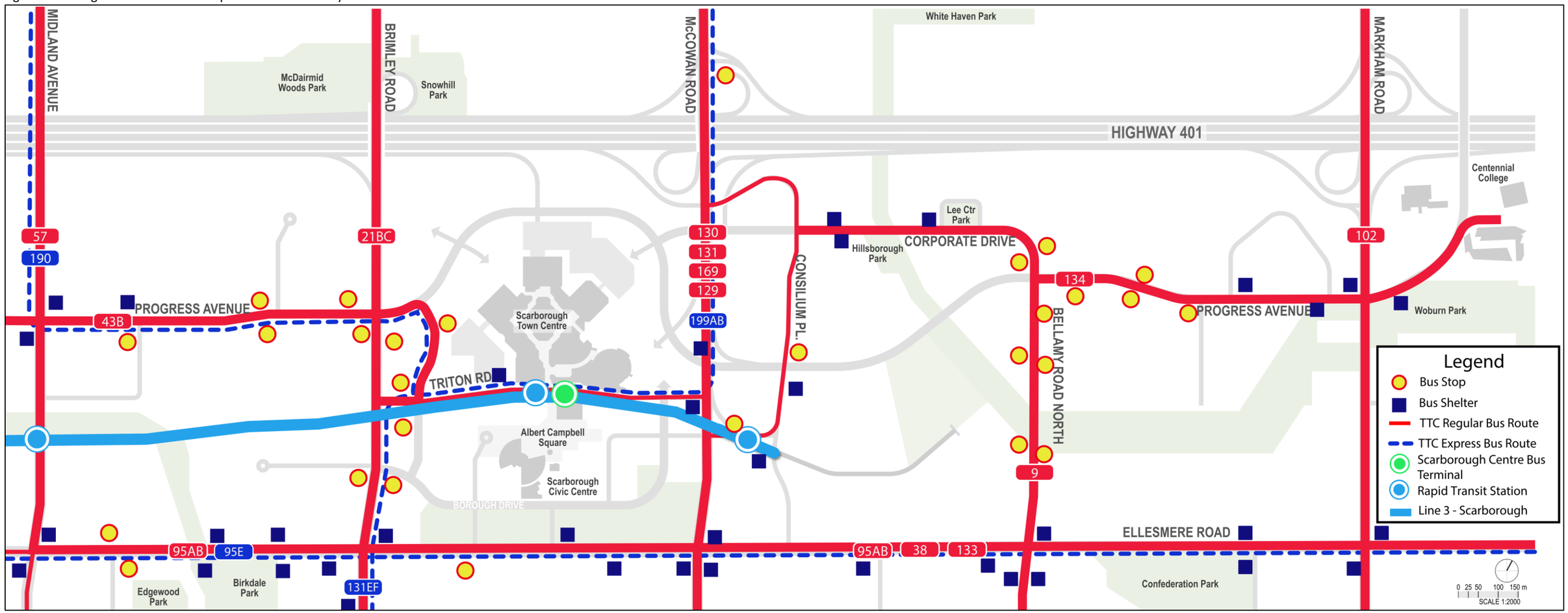
The 134 Progress Avenue TTC bus route is observed to have the highest utilization within the Centre (peak utilization of 80%). To enter/exit the terminal station, this bus route conducts a complex loop around Grangeway Avenue, Bushby Drive, McCowan Road and then Consilium Place. Approximately 600 people board/alight the 134 Progress Avenue TTC bus route at the Scarborough Centre Station during the morning peak hour. Furthermore, it was observed that the busiest bus stop/station in the study area, after the Scarborough Centre, is the bus shelter at the intersection of Corporate Drive and Lee Centre Drive, as 136 people utilize the route during the morning peak hour in the southbound direction. The above indicates that a large number of people who work and live in the residential and office developments on Corporate Drive are using the bus services to access the Civic and Town Centre Commercial Precincts (instead of walking and cycling), the communities and neighbourhoods north of Highway 401, and TTC Line 3 - Scarborough.

Other notable bus routes with strong demand during morning peak hour are TTC route 129 (McCowan North) and TTC route 133 (Neilson). Finally, it was noted that the intersections that service the most transit users are located predominantly on Ellesmere Road, at the intersections with Midland Avenue, Brimley Road, McCowan Road, Bellamy Road North, and Markham Road. Other notable intersections with heavy demand from transit users are Progress Avenue and Bellamy Road North, as well as Corporate Drive and Lee Centre Drive.

During the afternoon peak hour, TTC route 129 McCowan North has the highest ridership with 683 people utilizing the bus route during the afternoon peak hour, resulting in a peak utilization of 86%. It should be noted that 97% of users of TTC bus route 129 (McCowan North) board from Scarborough Centre Station. TTC route 133 (Neilson) is the second busiest bus route, with 500 people, and a peak utilization of 88%. The bus route operates between Scarborough Centre Station and the areas of Neilson Road, Crow Trail, and Morningside Heights. Both routes utilize Triton Road (at the intersection with McCowan) to enter the Scarborough Centre bus terminal.

It should be noted that complex maneuvers for some bus routes were observed within the study area. For example, at McCowan Road (between the intersection of Triton Road and Bushby Drive), buses pick up passengers at McCowan Station, only to conduct a difficult maneuver to make a left turn at Triton Road, to access the Scarborough Centre Bus Terminal. The buses only have approximately 40 metres to accelerate through 2 lanes of through traffic (60 km/h speed limit), which can result in delays for transit users during peak congestion periods.

Figure 9: Existing transit routes and stops in the SCTMP study area



6.0 Automobile

In order to better understand existing automobile traffic conditions, 47 intersections were assessed within Scarborough Centre. The outcome of this section is to identify intersections and approaches with traffic constraints and to quantify the percentage of drivers that by-pass the study area, as opposed to ending their journey in Scarborough Centre. Detailed results of the automobile analysis can be found in **Appendix C**.

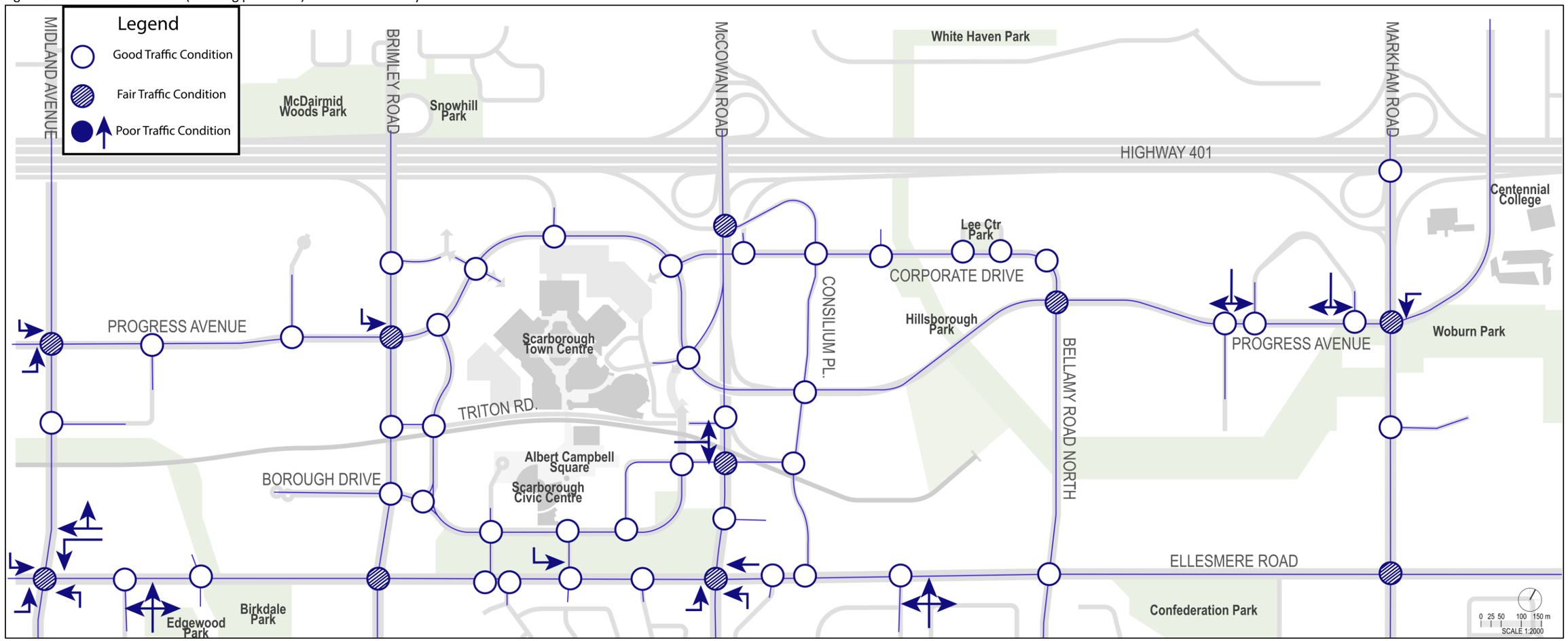
Traffic conditions were defined as g*ood*, f*air* or *poor* based on the Highway Capacity Manual (HCM) level of service indicators. Synchro Version 8 and InterCalc software were used to calculate the Level Of Service for signalized and unsignalized intersections. **Table 5** details the level of service (LOS) categories and corresponding criteria.

Table 5: Auto LOS categories and vehicle control delay for unsignalized and signalized intersections (HCM)

Category	**LOS**	**Delay in seconds (unsignalized intersection)**	**Delay in seconds (signalized intersection)**
Good	A	≤10	≤10
	B	10-25	10-15
Fair	C	20-35	15-25
	D	35-55	25-35
Poor	E	55-80	35-50
	F	>80	>50

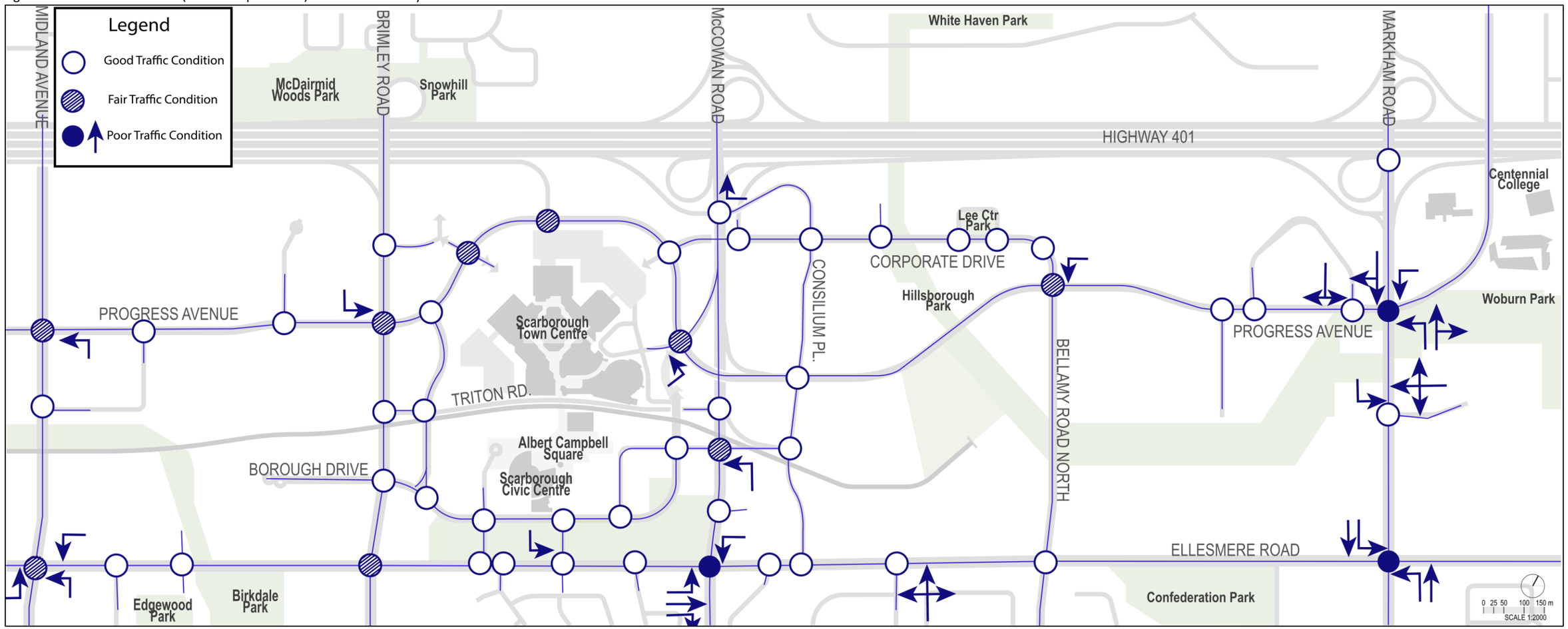
As shown in **Figure 10,** some delay and queue lengths were observed at intersections along major arterial streets during the morning peak hour. Some congestion was observed on several left-turn movements on Ellesmere Road, McCowan Road, and Progress Avenue. The intersection of Midland Avenue and Ellesmere Road is also identified to have congestion on all left turns, westbound through and right turn approaches, resulting in the traffic operation levels being constrained at this intersection, due to high left turn volumes competing with high opposing through volumes. The intersection of McCowan Road and Ellesmere Road show high volumes of traffic in the eastbound left, westbound through and northbound left approaches; with long queues in the northbound left turn lane.

Figure 10: Auto level of service (morning peak hour) in the SCTMP study area



With regards to the afternoon peak hour, as shown in **Figure 11**, traffic constraints were identified at intersections on Ellesmere Road, McCowan Road, Brimley Road and Markham Road. Intersections identified as experiencing poor traffic conditions are Markham Road at Progress Avenue, and Markham Road at Ellesmere Road, where heavy north/south through traffic inhibits left turns. The McCowan Road and Ellesmere Road intersection also operates at poor traffic conditions, where heavy eastbound traffic inhibits westbound left turns. Midland Avenue and Ellesmere Road show heavy volumes of left turn traffic in all but the southbound direction, resulting in fair traffic conditions. Similarly, fair traffic conditions can be seen on McCowan Road at Town Centre Court, and Brimley Road at Ellesmere Road and at a number of intersections along Progress Avenue.

Figure 11: Auto level of service (afternoon peak hour) in the SCTMP study area



7.0 Conclusions

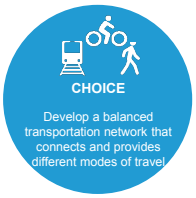
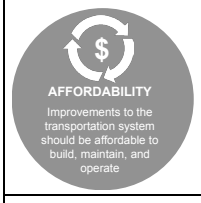
The evolution towards a multi-modal urban centre, where transit, walking, and cycling are more attractive than driving, is a major challenge in Scarborough Centre. The goal of the Scarborough Centre Transportation Master Plan (SCTMP) will be to improve connections by supporting and encouraging sustainable and active modes of transportation and reducing automobile dependence. The findings of this assessment identify areas of improvement for transportation facilities within the study area. Based on the above analysis, the following conclusions are made:

Mode	Conclusions
Pedestrian	• The majority of pedestrian infrastructure in the Centre is categorized as LOS E. LOS E is largely characterized by fragmented and disconnected sidewalk infrastructure, narrow sidewalks, high traffic speeds, and lack of physical separation between sidewalks and streets. • The Town Centre Commercial Precinct is predominantly an LOS F, which indicates the absence of safe pedestrian infrastructure. LOS F streets can indicate sidewalks are either entirely absent or are less than 1.5 metres in width • The highest pedestrian LOS identified in the study area is an LOS B, which is predominantly in the Civic Precinct. LOS B indicates a pleasant pedestrian experience.
Cycling	• There are no dedicated cycling facilities present, causing the majority of streets to be categorized as LOS E or F, which indicates the absence of a dedicated cycling lane on routes with relatively high traffic volumes and speeds • A large number of conflict zones exist for cyclists in the study area, including the Highway 401 on and off ramps, arterial roads, grade separations, and major intersections.
Transit	• Transit services in the study area have strong local and regional connections • The busiest bus stop/station in the study area, after Scarborough Centre Station, is the bus shelter at the intersection of Corporate Drive and Lee Centre Drive, as 136 people utilize the stop during the morning peak hour in the southbound direction. This indicates that some communities that are within walking distance of the Civic and Town Centre Commercial Precincts choose to use transit due to poor pedestrian and cycling connectivity. • Intersections that service the most transit users are located predominantly on Ellesmere Road, at intersections with Midland Avenue, Brimley Road, McCowan Road, Bellamy Road North and Markham Road. Other notable intersections with heavy demand from transit users are Progress Avenue and Bellamy Road North, as well as Corporate Drive and Lee Centre Drive. • Several major bus routes in the study area conduct complex loops and maneuvers to enter the Scarborough Centre Bus terminal at the eastern section of Triton Road.
Automobile	• Significant traffic constraints were observed at the intersections of Markham Road and Ellesmere Road, as well as McCowan Road and Ellesmere Road, during morning and afternoon peak hours. This is due to high left turn volumes competing with high opposing through volumes. • The majority of intersections in the study area are operating at an acceptable level of service. This contributes to the attractiveness of driving in the study area.

APPENDIX B

Summary and Detailed Evaluation Matrices

SCTMP Summary Evaluation Matrix

Principle	Question	Alternative 1: Existing Conditions	Alternative 2: Current Policy Framework	Alternative 3: Emerging Vision
	***Does it promote a shift towards sustainable modes of transportation?***	***No*** *Does not provide adequate amount of sidewalks (6.7 km) and dedicated cycling lanes (0 km)*	***Partially*** *Provides for increased sidewalks (10 km) and dedicated cycling lanes (5 km)*	***Yes*** *Identifies the most sidewalks (15 km) and dedicated cycling lanes (15 km)*
	Does it provide an efficient and integrated transportation network for all users?	***No*** *Favours automobile travel*	***No*** *Does not comprehensively address the study area, or efficiently incorporate proposed transit investments*	***Yes*** *Identifies connections between the study area and surrounding communities to transit investments via walking and cycling*
	***Does it support an attractive and vibrant public realm and sense of place?***	***Partially*** *Provides some sense of place on segments of Borough Drive, Albert Campbell Square and main entrance to mall*	***Partially*** *Provides for an improved sense of place through mixed land use, with a focus on the pedestrian and cycling experience*	***Yes*** *Builds upon Alternative 2 and defines street types based on Complete Streets Guidelines*
	Does it allow for the convenient and safe movement of users of all modes of transportation?	***No*** *Favours automobile travel through existing street design. Lacks wayfinding and active transportation connections*	***No*** *Identifies a pedestrian network, but does not define a wayfinding and signage strategy*	***Yes*** *Provides a defined and unique strategy for the Centre, specifying wayfinding improvements to street design*
	***Does it provide for opportunities to improve connectivity to work, school and other destinations?***	***Partially*** *Key routes and transit stations are not well-connected to key origins/ destinations*	***Partially*** *Some improved connections to key origins/destinations*	***Yes*** *Adds new connections for the entire Centre*
	Does it accommodate all users, including vulnerable street users?	***Partially*** *Does not fully comply with AODA, but does provide accessibility ramps in Albert Campbell Square and provides elevators in Scarborough Centre TTC Station*	***Partially*** *Does not improve all accessibility deficiencies in the network*	***Yes*** *Complies with AODA with regards to transportation network*
	***Does it support the mixed-use and transit-oriented vision of the Secondary Plan?***	***No*** *Does not achieve the objectives set out by the provincial and municipal policies*	***Partially*** *Complies with planning policies, but identifies further work is required for planning complete transportation network and facilities*	***Yes*** *Builds upon Alternative 2 and related planning polices, recommending a master plan for new transportation facilities throughout the study area*
	Does it create a transportation network and block plan that supports a vibrant urban centre?	***No*** *Encourages automobile travel through large blocks and street design*	***Partially*** *Provides guidelines for intersection spacing to encourage pedestrian activity for the McCowan Precinct*	**Yes** *Proposes a fine-grained transportation network for the entire Centre*
	***Does it improve connectivity and access within the Centre and to/from surrounding communities?***	***No*** *Does not provide adequate connections within Scarborough Centre and to/from surrounding communities*	***Partially*** *Creates policy framework for improving connectivity*	***Yes*** *Reconfigures transportation network for better connections between Scarborough Centre and surrounding communities*
	Does it encourage and support active and sustainable modes of transportation?	***Partially*** *Provides few transportation demand management (TDM) measures*	***Partially*** *Provides general TDM recommendations only*	***Yes*** *Identifies strategies for car share, bike share, demand-responsive transit, and outreach programs that encourage the use of active modes of transportation*
	***Does it minimize the impact on the natural environment and cultural heritage?***	***Yes*** *Does not impact existing natural environmental and cultural heritage*	***Partially*** *May impact ecology, built/cultural heritage or areas with archaeological impact*	***Partially*** *Potential greater impact on ecology, built/cultural heritage or areas with archaeological impact*
	Does it support and enhance the open space network?	***Partially*** *Maintains existing open spaces, but does not propose new open space connections*	***Yes*** *Promotes enhancements to the natural environment to improve the livability and sense of place in the Centre*	***Yes*** *Offers new connections to parks and open spaces throughout the Centre*
	***Is it economically feasible to implement (considering full life cycle costs, impact to utilities, durability and future expansion opportunities)?***	***Yes*** *Does not require investment for transportation network changes, but requires operating and maintenance costs*	***Partially*** *Requires some investments from public and private sector*	***Partially*** *Requires greater investment from public and private sector*
	***Does it encourage public and private investments?***	***Partially*** *Provides some potential for development on large parcels of land*	***Partially*** *Improves development potential in the Centre*	***Yes*** *Improves development potential in the Centre and maximizes connections and accessibility to the proposed public investments in transit*
	Does it allow for the safe and efficient movement of goods?	***No*** *Does not address the movement of goods and designated truck routes*	***No*** *Does not address the movement of goods and designated truck routes*	***Yes*** *Provides designated truck routes that are more efficient and separated from non-motorized traffic*

SCTMP Detailed Evaluation Matrix

Principle	Question	Criteria	Measure	Alternative 1: Existing Conditions	Alternative 2: Current Policy Framework	Alternative 3: Emerging Vision
	**Does it promote a shift towards sustainable modes of transportation?**	Pedestrian and cycling infrastructure	Kilometres of sidewalks and dedicated cycling lanes within the Centre	• Provides 6.7 km of sidewalks and 0 km of dedicated cycling lanes	• Increases length of total sidewalks to 10km and length of dedicated cycling lanes to 5 km	• Identifies the most sidewalks (15km) and dedicated cycling lanes (15km)
	Does it provide an efficient and integrated transportation network for all users?	Integration between modes of transportation	Types of transfer points that allow for efficient mixed-mode travel	• In general, pedestrian network is fragmented and dedicated cycling facilities are non-existent, making neither option a viable choice • Key transfer points include: - Scarborough Centre TTC Station (Bus, Pedestrian, and SRT) - McCowan and Midland TTC Stations (Bus, Pedestrian and SRT) - Other Bus Stops, e.g. Corporate Drive/Lee Centre Drive, Ellemere/McCowan, Ellemere/Brimley (Bus, Transit)	• Multi-modal street network for the McCowan, Civic, and Town Centre Commercial Precincts • Partially addresses connections between Precincts and surrounding communities. For example, pedestrian and cycling access across Highway 401 • New subway and bus terminal will not be connected by a compatible street pattern due to adjacent grade separations (Progress Avenue and Corporate Drive with McCowan Road) and channelized right turns (Bushby Drive to McCowan Road) that limit pedestrian and cycling connections • Bus routes and stops are not modified to incorporate new bus terminal	• Builds upon Alternative 2 • Develops a comprehensive street network for all precincts and includes connections between precincts • Progress Avenue and McCowan Road, as a signalized at-grade intersection, will allow for stronger pedestrian/cycling connections to transit • Bushby Drive channelized right turn onto McCowan Road is removed for better pedestrian and cycling connectivity • Bus routes and stops are modified to incorporate new bus terminal and to provide local trabsit service to the Centre • Provides recommendations to improve pedestrian and cycling connections to communities to the north (reconfiguration of three highway 401 interchanges) and south (reconfiguration of Ellesmere Road intersections with Borough Approach East and West) in order to have better accessibility to the Centre without the need of an automobile
	**Does it support an attractive and vibrant public realm and sense of place?**	Appropriate street type and design that accommodates all modes of transportation	Identify the street type and its adherence to the design principles outlined in the Complete Streets Guidelines	• Segments of Borough Drive adhere to a Civic Street based on the Complete Streets Guidelines. The segment in front of the library respects local context, creates an attractive public space • Most streets throughout the entire study area are designed to favour automobile travel and fail to adhere to the Complete Street Guidelines (Streets for People, Placemaking, Prosperity)	• The Scarborough Centre Secondary Plan envisions McCowan Road, Ellesmere Road and Brimley Road, as mixed-use streets that promote commercial and retail with surface transit • Progress Avenue is envisioned to contain an animated pedestrian streetscape • The Brimley corridor is intended to function as a major connection to/from the Centre and support adjacent mixed land-uses • The McCowan Precinct plan envisions Bushby Drive (and its extension) as a promenade that connects the future park and school facilities, with a high level of pedestrian activity	• Builds upon Alternative 2 to develop design principles based on Complete Streets Guidelines. • Segments of Borough Drive, and east and west approaches will draw from design guidelines for Civic Streets due to significant adjacent institutional uses • Brimley Road, Progress Avenue, segments of Borough Drive, and McCowan Road will reflect the design principles of Downtown and Centres Main Streets and support a wide range of land uses and activities for all modes of transportation • Ellesmere Road is proposed as a Mixed-Use Connector Street with high-order surface transit routes and separated cycling facilities • Segments of Corporate Drive, Town Centre Court, Omni Drive, Grangeway Avenue, and other streets will be developed using Downtown and Centres Residential Streets design elements with a high level of pedestrian and cycling activity and moderate level of automobile traffic • Proposes several Employment Streets to connect truck and goods movement
	Does it allow for the convenient and safe movement of users of all modes of transportation?	User-friendly signage and wayfinding; active transportation connections	Assessment of the following wayfinding signage components: directional/locational, introduction, identification, and vehicle and pedestrian signage to enhance connections to key origins/destinations	• There is a lack of a uniform, comprehensive system of signage to help residents and visitors navigate the Centre. For example, there is no introductory signage leading into Scarborough Centre, with the exception of one sign on McCowan Road. Directional/locational signage is inconsistent, with different colors, sizes and logos. • Vehicle wayfinding is present but is not comprehensive and some signs are worn-off and illegible. •Pedestrian wayfinding is minimal. There is no signage or wayfinding inside the mall parking structures to provide directions toward exits or to access the mall; however, there are several pedestrian connections and accessibility elevators. • Lacks an intuitive and connected active transportation network to connect to key origins and destinations	• Provides a general recommendation that the City is to develop a comprehensive wayfinding strategy for the study area • Provides the policy framework for enhancing active transportation networks and providing better connections between key origins and destinations	• Recommends developing a comprehensive strategy for a unique signage and wayfinding program that respects the context of the Centre. This includes identifying best practice for intuitive navigation of all modes of transportation, such as: - Directional signage for all modes of travel, comprehensive of private developments - Locational signage for context within the Centre for pedestrians and cyclists to help navigate major destinations and connections in the Centre - Introductory signage to provide unique character to the Centre - Identification of different vehicle and pedestrian signage types • Wayfinding and signage will be used to enhance the active transportation environment and to enhance connections between destinations • Provides the policy framework and comprehensive active transportation networks and providing better connections between key origins and destinations
	**Does it provide for opportunities to improve connectivity to work, school and other destinations?**	Changes in accessibility to desired destinations	Number of connections	• Key routes to destinations and transit stations, particularly between Progress Avenue and McCowan Road, are not accessible	• Provides policy context for creating a well-defined, cohesive and connected public realm that will provide connections to key destinations	• Recommends that all major destinations and transportation facilities in the study area be accessible Includes retrofitting existing connections and adding newly accessible pedestrian connections in the study area
	Does it accommodate all users, including vulnerable street users?	Improves mobility for vulnerable users	Compliance with Accessibility for Ontarians with Disabilities Act (AODA)	• Does not fully comply with AODA, but does provide accessibility ramps in Albert Campbell Square and elevators in Scarborough Centre TTC station	• Does not improve all accessibilitydeficiencies in the network	• Complies with AODA and provides design guidelines and policy recommendations for all transportation facilities in the study area (streets, ramps, intersections, parking, transit stops and transfers, wayfinding, and crossings).

SCTMP Detailed Evaluation Matrix

Principle	Question	Criteria	Measure	Alternative 1: Existing Conditions	Alternative 2: Current Policy Framework	Alternative 3: Emerging Vision
	**Does it support the mixed-use and transit-oriented vision of the Secondary Plan?**	Reflects planning policies	Compliance with the vision of the Scarborough Centre Secondary Plan as outlined in policies relating to transportation and mobility	• Does not achieve the objectives set out by the provincial and municipal policies	• Complies with planning policies, but identifies further work is required for planning complete transportation network and facilities	• Builds upon Alternative 2 and related planning polices, recommending a master plan for new transportation facilities throughout the study area. • Recommends design guidelines for street types drawing from Complete Streets Guidelines • Provides recommendations for transit-oriented developments surrounding new transit investments
	Does it create a transportation network and block plan that supports a vibrant urban centre?	Consistency with mixed-use principles	Simplified grid/street network (average block size)	• Consists of large development blocks (greater than 150 m intersection spacing) that encourage automobile dependency. • With 0.14 intersection per hectare, the Centre currently favours automobile travel	• Proposes a simplified grid/street network with intersection spacing ranging from 80-150m for the McCowan Precinct. The Town Centre Commercial and Civic Precincts follow the same principle, but no grid is proposed for the Brimley Precinct. • Such intersection spacing provides for pedestrian-oriented blocks that allow for large enough development parcels in the range of 0.36 to 0.7 hectares	• Builds upon the design framework for the McCowan Precinct Plan, by proposing a simplified grid/street network for the entire Centre area, with intersection spacing ranging from 80-120 m, which allows for a more human-scale block pattern and still provides opportunity for development
	**Does it improve connectivity and access within the Centre and to/from surrounding communities?**	Review of impact to safety and comfort for all modes	Road diets, safe pedestrian and cycling crossing locations, the operation of bus routes/stops in the Centre and the removal of channelized right turns and ramps	• Includes 3 Channelized right turns (Borough Approach East and West at Ellesmere Road, Bushby Drive and McCowan Road) , 10 ramps along McCowan Road, 2 ramps at Brimley Road interchange • Barriers to active(Pedestrain & cycling) crossings • Bus routes undertake complex routes and manoeuvres to enter bus terminal	• Provides the policy framework for improved connectivity and identifies the need to improve connections by removing channelized right turns, identifies Brimley off-ramp to be reconfigured and removal of channelized right turn from Bushby Drive to McCowan Road. Thus includes: 2 channelized right turns (unchanged) - 10 ramps on McCowan Road (unchanged) • Does not address bus routes	• Reconfiguration of McCowan Road (with removal of ramps and grade separations). This includes normalization of the Progress Avenue and McCowan Road intersection, and removal of the ramps. Also normalizes the Bushby Drive/McCowan Road intersection and removes all channelized right turns. Thus includes: - 0 channelized right turns - Removal of 4 ramps from McCowan Road - Reconfiguration of the Highway 401 interchange and ramps to allow for better pedestrian and cycling connections • Improves bus routing
	Does it encourage and support active and sustainable modes of transportation?	Incentive measures to promote active modes of transportation	Number of transportation demand management (TDM) measures	• Provides few TDM measures • Existing strategies include bike lockers, private car share and SmartCommute Workplaces	• Generally recommends TDM strategies, such as car share, to reduce auto-dependency.	• Recommends identifying strategies for car share, bike share, a demand-responsive internal bus terminal, and outreach programs to increase active and sustainable modes of transportation in the study area. • Provides transit-oriented development guidelines for new developments • Reduces high-speed vehicle traffic on major streets
	**Does it minimize the impact on the natural environment and cultural heritage?**	Impact on area ecology, built/cultural heritage and areas with archaeological potential	Size of area and number of features affected	• No impact to ecology, built/cultural heritage or areas with archaeological impact	• Some impact to ecology, built/cultural heritage or areas with archaeological impact. • Proposed changes to the transportation network that may conflict with areas of archaeological potential include improvements such as proposed extension of Bushby Drive and reconfiguration of the Brimley interchange	• Potentially greater impact on ecology, cultural heritage and areas of archaeological potential. The following proposed changes to the transportation network may conflict with areas of archaeological potential: - Reconfigure form, function and operation along the McCowan Road corridor, specifically at Progress Avenue - Development of a simplified grid/street network on empty land parcels (such as the land between Borough Drive and Brimley Road)
	Does it support and enhance the open space network?	Improves open space connections in the study area	Number of connections to open space areas for all modes of transportation	• Maintains existing open spaces, but does not propose new open space connections	• Promotes the enhancement of the natural environment to provide relief from the urban context of the area and improve the livability, desirability, and sense of place in the Centre	• Offers new connections to open spaces throughout the Centre and incorporates wayfinding with trails and green spaces to become viable and strong connections for active modes of transportation. • Will provide policy recommendations to encourage transit-oriented developments by outlining appropriate zoning by-laws and parking requirements for the Centre.
	**Is it economically feasible to implement (considering full life cycle costs, impact to utilities, durability and future expansion opportunities)?**	Implements improvements considering full life cycle costs, impact to utilities, durability and future expansion opportunities	Capital, operating, and maintenance costs	• Requires no cost for transportation network improvements, but requires operating/maintenance costs for existing infrastructure. • Existing structures are approaching the time for scheduling minor maintenance repairs as per bridge inspection reports. In the next 20-30 years, these existing structures will be required to schedule major bridge repairs. • Asphalt repairs will also be required as identified by the City of Toronto's Pavement Design Guidelines	Requires capital resources for the development of the following solutions: • The extension of Bushby Drive to the lands at 705 Progress Avenue, and designating the Bushby Drive Promenade with a generous right-of-way for public green space • Enhancing the Corporate Drive underpass and Progress Avenue Bridge (including public art, lighting, plants, wide sidewalks, etc.) • Eliminating and/or reconfiguring vehicular ramps between Bushby Drive and McCowan Road • Redesigning of Brimley Road/Highway 401 interchange • Enhancing the function of Borough Drive between Borough Approach East and West • Reconfiguration of Borough Approach East and West intersections at Ellesmere Road • Widening of Ellesmere Road from McCowan Road to Morningside Avenue • Constructing new streets to divide large parcels of land in the Centre • Building a new bridge on Bellamy Road to Milner Avenue • Establishing a 'Gateway' at McCowan Road and Town Centre Court/Bushby Drive • Creating dedicated bike lanes on McCowan Road south of Progress Avenue, on Town Centre Court/Bushby Drive Extension from Borough Drive East to the 705 Progress Avenue site • Marking of bike lanes and/or sharrows on Progress Avenue, Consilium	Builds upon all the solution of Alternative 2, and includes the following solutions that require significant investments: • Removing the grade separation at the intersection of McCowan Road and Progress Avenue • Enhancing east-west connections through Albert Campbell Square by connecting with the proposed Bushby Drive Promenade • Enhancing Borough Drive into a complete Civic Street with a cluster of public landmarks and open spaces • Redesigning Highway 401 interchanges to improve safety for pedestrians and cyclists • Reconfiguring the form, function and operation of the transportation network along McCowan Road • Determining the function and operation of Triton Road, including transit (bus) access, servicing and routes, and connections for active modes of transportation • Identifying crossing opportunities including mid-block crossing and conflict points that require enhancements for pedestrians and cyclists • Identifying the type and location of parking required within the Centre and recommends appropriate parking strategies and measures to help reduce automobile dependency • Designating pedestrian/cycling connections to encourage residents and visitors of the Centre to rely less on automobiles • Developing a wayfinding and signage strategy to aid in the navigation of all modes of travel • Reconfiguring the SRT corridor/infrastructure into green east-west connections and pathway • Widening of Ellesmere Road from McCowan Road to Morningside Avenue, to accomodate future transit improvements

SCTMP Detailed Evaluation Matrix

Principle	Question	Criteria	Measure	Alternative 1: Existing Conditions	Alternative 2: Current Policy Framework	Alternative 3: Emerging Vision
	**Does it encourage public and private investments?**	Unlocks the potential for development	Size/number of new development properties and accessibility to transit	• Large development blocks allow for development of segregated land uses rather than mixed-use and higher density development • Provides constraints to developments in key areas (such as the vacant land north of Bushby Drive). Furthermore, the Centre has not reached 50% of density targets set out by the Places to Grow Act for the year 2031.	• Unlocks potential for developments in the McCowan, Civic, and Town Centre Commercial Precincts. • Does not fully support the accessibility/connectvity to the new subway and bus terminal	• Builds upon Alternative 2, and unlocks development potential in the entire Centre, including the Brimley Precinct. • Reconfigures street network to provide stronger access for pedestrians and cyclists to the new transit investments.
	Does it allow for the safe and efficient movement of goods?	Strategic movement of goods in the Centre	Number of designated and segregated truck routes in the study area	• Does not provide truck routing that is segregated from non-motorized traffic	• Does not address the movement of goods or provide designated truck routes that are segregated from non-motorized transit • Provides recommendation for a wayfinding and signage strategy, which would improve truck movement	• Designating truck routes to allow for efficient and reliable goods movement while reducing exposure to pedestrians and cyclists • Improves road and intersection design for greater efficiency of goods movement • Provides improved wayfinding and signage to direct trucks through the Centre